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CASE OF RABIES IN A HORSE.

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On the morning of September 10th, 1885, the regiment was at drill on Wormwood Scrubs, and had just finished performing outpost duty. Some horses of A troop were dismounted previous to returning to barracks, when a black retriever dog was seen in close contiguity to A 36. The horse, as horses mostly do, put down his head, as if anxious to find out what the dog wanted. Without the slightest previous warning, the dog seized the horse by the upper lip, inflicting severe lacerated wounds on the outer and inner surface.

The case was reported to the officer in command, who, with commendable prudence, ordered the man to mount and return quickly to barracks and report the case to me. When I saw the horse about three-quarters-of-an-hour after the injuries had been inflicted, I cauterized the wounds deeply, and had the animal placed in a box in the infirmary. Medicines were administered with a view of keeping the horse in a perfectly healthy condition. The horse remained under my supervision until the 13th of October, a period of five weeks, when apparently in perfect health and condition, he was sent to his ordinary duty.

A careful examination was afterwards made every second or third day by myself, to discover, if possible, any symptoms of Rabies that might be in course of development.

Nothing unusual was observed until the horse was at riding school on the 6th of January, a period of 119 days from the dog's attack. He was then seen to be unusually restless, with frequent inversions of the lips and spasmodic twitchings of the muscles of the neck.

Noticing a most unusual expression—"cunning, blended with ferocity"—in the face of the horse, I sent him at once to the infirmary, placed him in a dark loose box, and with great difficulty succeeded in administering a strong opiate. The man who had ridden and groomed the horse assured me he had not previously observed anything unusual. The horse, he said, ate well and drank freely, but he remarked, on the morning of the 6th, "When I was going round the school he gave two or three shakes such as I never knew a horse to give. Not shivers," he said, "or shakes like a horse gives when he is a bit tired, but more of a tremble."

After a period of three hours, the horse getting more restless and excited, I ordered a second opiate, but when the farrier major attempted to give it, the horse rushed at him and seized the sleeve of his jacket. Seeing the danger of trying to approach the animal, I had the box locked and kept the patient perfectly secluded. The paroxysms of fury increased in intensity for a period of thirty-six hours, the horse attempting to destroy everything within reach, when death ensued from exhaustion.

Autopsy nine hours after death :—

The contents of the abdominal and thoracic cavities were quite healthy. A careful examination of the brain was made, and compared with that of a healthy horse, but no material difference could be detected.

I do not venture to offer any pathological remarks on this case, as my experience of this horrible and incurable disorder is very limited. Only two cases have come under my observation in a practice extending over twenty-five years—the present one, and the other, an officer's charger in India, which was shot by the owner soon after the delirium commenced. This horse was known to have been bitten by a pariah dog some two or three months previously.

ABSCESS IN THE OS SUFFRAGINIS.

BY J. C. JAMES, M.R.C.V.S., THORNBURY, GLOUCESTERSHIRE.

THE rarity of the occurrence of the formation of an abscess in the bones of animals, induces me to send the history of the following case for publication :—

The subject was a light-legged cart-horse, six years old.

In attempting to break through a hedge which separated the home field from an orchard, the animal became inextricably fixed in an iron drag, which had been placed there by the farmer's son. Being a high-spirited horse, he struggled violently to free himself, but without effect; for it was not until the irons had been un-

screwed and taken apart that he was liberated. It was then found that he had sustained severe injuries to the legs. The near fore-leg was lacerated from the knee to the fetlock joint, laying bare the tendons, ligaments, and bone. The off hind-leg was severely bruised, but the skin was not lacerated. Next day the animal exhibited symptoms of great pain in the off hind-leg, and was consequently placed in slings. Appropriate treatment was prescribed, and morphia was given subcutaneously to combat the increasing pain. The parts between the fetlock joint and foot swelled, and in three or four days broke in the heel, and synovia, in rather large quantities, made its appearance, indicating that the synovial sheath of the tendons had been injured ; also an abscess was opened on the inside of the coronet. Treatment was continued, and the animal improved so much as to be able to bear a little weight on the foot for a week, when the pain returned, and he became very violent when the parts were manipulated. The front of the foot, and particularly the front of the os suffraginis, became enlarged and extremely painful.

Everything was done to alleviate the pain and suffering, but it soon became evident that the animal must succumb, which he did in about a fortnight from the time he received the injuries.

The fore-leg, which at first appeared to be the worse injury, had made good progress towards recovery.

On making a *post-mortem* examination, the os suffraginis bone was found to be enlarged, and somewhat spongy at the front; and on making a longitudinal section, an abscess, nearly as large as a walnut, was found in the bone, at the lower part of its middle third, and containing thick, healthy-looking pus. The cancellated structure around was softened and the cancelli enlarged.

A CASE OF MELANOSIS.

BY J. MATTHEWS, F.R.C.V.S.

THE following case, though by no means rare in veterinary practice, proves interesting, I think, from the advanced stage it had reached whilst the animal was enjoying apparently good health. Externally, there were only three or four small melanotic tumours on the neck and tail, and I was informed that, notwithstanding its age, twenty-one years, it had performed fast work without inconvenience, till a short time prior to my seeing it ; but though its appetite was unimpaired, it had lost condition for a few months previously.

The patient, a white mare, was purging excessively, fæces being very fetid, urine very dark in colour, and micturition, though pain-

less, very frequent. Death took place in twenty-four hours after, apparently from exhaustion supervening on acute Diarrhœa.

A *post-mortem* examination revealed melanotic infiltration in the spleen, which was enormously enlarged, and weighed 59½ lbs., and with the liver, similarly diseased, weighing about 34 lbs., occupied half the abdomen. Most of the other glands were similarly diseased; and lodged in the bifurcation of the aorta was an egg-shaped tumour, embedded in fat, tinged with black. Beneath the pleuræ, peritoneum, and endocardium, and pervading the lymphatic glands, were countless tumours, varying in size from that of a pea to a small nut.

The intestines were shrunken and very pale, especially the colon and cæcum, which were half their natural size. The voluntary muscles were paler in colour than usual.

ON THE TREATMENT OF AN EXTENSIVE LACERATED WOUND IN A THOROUGHBRED YEARLING FOAL.

BY J. BRODIE GRESSWELL, LOUTH, LINCOLNSHIRE.

On November the 17th, last year, the writer was summoned to a very valuable thoroughbred yearling foal, at a farmstead near Horncastle. The case was one in which the extensor muscles of the near fore-limb were cut completely through to the radius, and were much mangled and lacerated. The extensor metacarpi magnus hung down about seven inches, and the skin was torn transversely and longitudinally. These injuries had been sustained about five hours before my arrival.

Having removed some portions of mangled tissue, now cold and non-contractile—some two ounces or so, in all—the writer proceeded to sew together the several muscles. The sutures employed were those of carbolised cat-gut. The ends of the extensor metacarpi magnus were much lacerated. They were pared a little, and it was thought advisable to sew them firmly together, after inserting a small drainage-tube between them and the neighbouring muscles. The drainage-tube was carefully dressed with ointment of eucalyptus, iodoform, beeswax, and lard. The antebrachial aponeurotic fascia was then stitched together with an uninterrupted suture of antiseptic silk. Lastly, the skin was sewn together with medicated silk, an aperture being left at the lower end for the drainage-tube. The external parts were then cleansed thoroughly with weak antiseptic lotion, and the whole wound was covered over with a bundle of carbolised tow. Pressure was applied by bandages, so as to support the lower parts of the severed muscles. From the first no fomentations were allowed. On November 20th there was slight swelling, which had burst several of the skin

sutures. There was no discharge, excepting a little from the drainage-tube.

On the following day the discharge was more abundant, and most of the skin sutures had burst through. The pulse was 48; the temperature 101·5°, or one degree above the normal. The parts were now dressed with the antiseptic ointment above-mentioned. On November 24th the muscles had firmly united, and the skin flaps had separated exactly four and a half inches. Exuberant granulations were abundant. The drainage-tube was now removed and reinserted. The wound was now ordered to be dressed twice daily. On November 27th the skin flaps had become adherent to the muscle, and the tube had ceased to discharge. The muscular tissue projected somewhat out of the wound. On December 3rd the injured part was perfectly healthy; the skin wound was only three inches in length. The granulations were not elevated above the level of the integument.

On December 8th the foal was liberated, and on the 22nd all that remained visible of the wound was a healthy narrow streak, about one-eighth of an inch broad and two inches from end to end.

At no time in the progress of the case did the temperature rise more than one degree above the normal. The frightful laceration of the divided muscles was the factor in the case which rendered it of such a serious nature. The foal made a perfect recovery, and now shows no signs of its serious mishap.

The features in this case which are perhaps of most striking interest, are the absence of febrile symptoms and the complete and rapid recovery where such extensive injury had been inflicted. In severe wounds such as these the judicious local application of antiseptics, general care, judgment, and management, are of course of far greater importance than internal treatment, though this, too, must in nearly all cases contribute to a favourable result, where fortunately our efforts are thus rewarded.

The foal was, of course, tied up during the process of healing, and the limb was so carefully bandaged that no movement in it could possibly hinder the kindly operations of Nature. All was done that could be done to ensure the union of the various severed structures. The extensively-lacerated wound was most thoroughly cleaned, and the greatest pains were taken to sew nicely and carefully together the muscles, their more immediate coverings, and finally, the skin. For some time, as might be expected, the union of the divided ends of the muscle thus artificially brought into intimate contiguity was not complete. There was to be seen a slight groove or depression, which was afterwards gradually filled up with new tissues, and at length it entirely disappeared. At the present time scarcely a sign or trace of previous injury re-

mains. The wound has entirely healed, the various structures, both muscular and connective, having grown together most completely.

THE BURSA MUCOSA ILIACA AND ITS CONNECTION WITH THE HIP-JOINT.

BY MAX KETTRITZ, GRADUATE OF THE DRESDEN VETERINARY SCHOOL.

THE point which I have the honour to bring to notice, although a small one, is, I think, of sufficient interest and rarity to justify its publication. I have personally made a sufficient number of *post-mortem* examinations to enable me to gather a certain amount of clinical facts in regard to it; for I have failed to find, in all the veterinary works I have consulted, any information bearing upon this particular subject. And yet the above-mentioned connection is so frequent in the horse, that out of twenty necropsies I have found five instances of it.

To obtain a proper conception of the anatomical situation of the bursa, it will be necessary that we review and bear in mind the anatomy of the part. It appears as a fold of the capsular ligament, which is always to be seen in close connection with the free margin of the cotyloid cavity; it extends downwards, to become attached around the outer margin of the articulatory surface of the head of the femur, and it is lined by synovial membrane, which also invests the pubio-femoral and teres ligaments. On the anterior side of the joint there often remains an important opening, sometimes small, at other times large. Through this opening the synovial membrane passes, extending on the external side of the fibrous capsule, and forms the posterior wall of the bursa; then turns again below, above, and to the side, forming seemingly a closed sac over its internal wall. As soon as the synovial membrane passes out of the opening in the capsular membrane, its appearance and texture appears rarely to change. I neither found it smooth nor bright when it passes over the head of the femur and the acetabulum. The anterior wall of the bursa is very thin, besides, and it is only formed by the above-mentioned extension of the synovial membrane. If the bursa is not in connection with the joint, the membrana capsularis is everywhere shut, and no other opening is to be seen. The connection is always found on the posterior side, so that the diameter of the length of the opening is nearly always parallel to the diameter of the width. The opening in the bursa is almost always oval and simple, though in several cases divided into several small openings by quite narrow fibrous stripes. That these openings, divided by stripes of fibrous tissue, are faults of conformation, there is no doubt; they are not

laceration of the capsular ligament, as mentioned by several authors.

As diseases of the bursa iliaca appear most frequently as inflammatory affections, on account of the situation of the bursa between a firm tendon and the bone, also because of their functions, such an inflammatory process, which also affects the capsular ligament, alters the fluid contained in the bursa, which must, of course, affect especially the hip-joint, if they are in connection with each other. This deserves the greatest attention, as some diseases of the bursa iliaca are sometimes mistaken for diseases of the hip-joint. Very insignificant injuries during life have been found, in some cases in which *post-mortem* examinations have been made, to have caused very serious destruction of the articular surface of the joint, the bursa being primarily affected and the joint only secondarily. Abscesses in the vicinity of the hip-joint have produced phenomena that have been erroneously diagnosed as Coxarthrocace, but which was only Coxalgia. In patients in which the diagnosis had been a psoas abscess, large cavities, containing pus, in the hip-joint have been revealed, and which no one could have supposed to exist in such a place. In these cases the effusion of pus has generally filtered through the bursa and its opening, into the hip-joint. A disease of the bursa which changes its secretion also alters the synovial fluid of the hip-joint. The abscesses so frequently met with in inflammation of the hip-joint correspond generally to a true infiltration of pus, which takes place by the so-called opening in the hip-joint.

A brown mare, which gave indications of being badly nourished, from its emaciated condition, and suffering from unsanitary surroundings, became lame for the first time a year ago, and the owner therefore consulted a veterinary surgeon. In course of time several veterinary surgeons had been consulted, and they all were of opinion that it was an inflammation of the hip-joint, and gave an unfavourable prognosis. The patient, on being made to move, manifested signs of intense pain when the toe (off hind) was brought to the ground, and it was instantly withdrawn, with convulsive spasm of the muscles of the limb. The whole limb was considerably swollen, and on palpation it imparted a feeling of fluctuation. In the inguinal region a large abscess formed, which the veterinarian called in opened. The case was soon after brought to me for treatment by the owner, and the interesting features were—very marked lameness, the limb projected outwards, and the leg, which at first seemed longer, on subsequent careful examinations proved to be shorter. On examining the limb, I found that flexion and rotation increased the pain in the part to an alarming extent, as did pressure on the external muscles of the quarter. Pulse 52, of fair volume, but very compressible; the

radial pulse imperceptible. Physical signs of lungs, seeming normal; urine, 1,040, acid, no albumen; appetite poor.

With the exception of a previous attack of Pneumonia and a severe cold, the animal has enjoyed good health up to this time.

That the disease was an inflammation of the hip-joint, there was no doubt; but it was impossible to give a precise anatomical diagnosis, owing to the want of more definite symptoms. The prognosis was, after nearly a year's lameness, very unfavourable. The strongest therapeutical and surgical measures having been resorted to in vain, the patient was killed four weeks after my first consultation.

Necropsy, six hours after death:—

On opening the thorax, the lungs did not collapse; in the anterior edge of the upper lobe were several caseous nodules; a large quantity of serum could be expressed. The substance of the heart presented a waxy appearance on section. The cavities were filled with decolorised blood-clot; valves were closed. The pericardium did not contain any fluid. Liver and kidneys were hyperæmic. Under the ligamentum Poupartii was a canal by the crural vessels, filled with ichorous matter; higher up, another canal ran deeply inwards, as far as the tuberosity of ischium. The ichorous canal followed a course as far as the origin of the psoas muscle, where it terminated. Close to the place where the psoas passes under the crista, was another abscess. The femoral veins were much enlarged, so much so as to admit of one's thumb being passed into them. On the inner and posterior side of the great trochanter was a cavity filled with pus, extending from the muscles to the capsular ligament by a small opening. The bursa was very large and dilated, being filled with ichorous matter which had burrowed deeply in several places into the muscles, and there were several fistulous openings. Between the bursa and the joint was a communicating opening, through which was seen the carious head of the femur. The entire head of that bone was diminished in size, but the neck was only partly carious on its anterior surface; the synovial membrane and the cartilage were destroyed in patches as far as the process had gone. The bursa was converted into a dense fibroid mass of almost cartilaginous density; in some places it was thickened with œdema of the sub-synovial tissue. Flakes of lymph were mingled with the synovia, for it is known that, like the great serous cavities, the bursæ are in direct connection with the lymphatic and inflammatory products, and they are consequently absorbed from them with great readiness. The surface was eburnated and marked with ridges, produced by friction. Perforations occurred in it, giving it a sieve-like appearance. The cartilage was loosened and necrosed. The synovial fluid was albuminous in character, turbid and puriform.

Microscopical appearances :—

The substance of the synovial membrane and the synovial tissue were crowded with many small lymphoid cells, which were deposited in the interstitial tissue in a delicate network, and contained many new capillary vessels. These lymphoid nucleated cells appeared to be identical with those lining the outer zone of a tubercle nodule.

THE FRESH JUICE OF *CHELIDONIUM MAJUS;* A REMEDY FOR OPACITIES ON THE CORNEA.

BY THE SAME.

For opacities on the cornea, I have applied for two years, with very rapid and favourable results, the fresh juice of *Herba Chelidoniæ*. I cut off a little piece from the flower-stalk of the fresh plant, press it between my fingers, and allow a drop of the juice which exudes to drop upon the cornea, whereupon the conjunctiva sclerotica becomes quite red, and the opacities disappear in a short time.

Knowing that this was used for the eradication of warts, caused me to guess that it might be effectual to remove opacities from the cornea.

LYMPHADENOMA.

BY J. C. DWYER, M.R.C.V.S., M.R.C.S., ARMY VETERINARY DEPARTMENT.

History.—"Dymchurch," a bay mare, aged twelve years, belonging to the Riding Establishment, Woolwich, joined the service in 1874, since which time she has been at regular work, and always carried good condition. About fifteen months ago she was noticed to have acquired the habit of wind-sucking, and a falling-off in condition dates from this period. She continued at regular work until May 15, 1880, when the first entry is made against her for "Debility: light in condition, but otherwise in good health and spirits. A ball of carbonate of ammonia and gentian was given in the morning, and gentian, sulphate of iron, and magnesia mixed with the evening feed. Turned out to graze during the day." The second entry is August 11—"Debility," the prominent symptom being rapid respiration. From this date the patient became rapidly emaciated, although the appetite remained unimpaired. The respiratory murmur was local on both sides; there was, however, a complete absence of stridor or distress, and the impression conveyed by the respiration, as regards the condition of the patient, was that of extreme feebleness and prostration. Opinions varied as to the seat of disease, one class tending towards the lungs as the primary seat, others towards the mesentery. Tubercle was

thought to be the most probable cause of the mischief, and the patient was isolated from the 27th August until death occurred on the 2nd of September.

Post-mortem Examination.—Fourteen hours after death.

Head.—Not examined.

Thorax.—Lungs irregularly discoloured, somewhat congested, with green hepatization at apices and margins.

Abdomen.—Large quantity of serum in abdominal cavity. Intestines of a pale slate colour, innumerable tumours in mesentery, the larger ones being of the size and much resembling damsons in appearance. Spleen contained from thirty to forty tumours, the majority being of the size of a tennis-ball, and weighed twelve pounds. They consisted of an external capsule, the interior being composed of glandular substance common to the lymphatics. No tubercles present in any organs. Liver healthy, with a single hydatid cyst, the size of a hazel-nut, on surface.

Commentary.—Having had the very great satisfaction of making a *post-mortem* in this case, we are able to compare the symptoms and the *post-mortem* appearances. The features which strike one are, the absence of any history of Colic; as a matter of fact, she never had any symptoms approaching a Colic attack, though the onset of the disease probably dates from the falling-off in condition —*i.e.*, fifteen months prior to death. The hurried respirations remain unaccounted for by the *post-mortem* appearances, the organic disease of the lungs being altogether insufficient to account for it. Was it sympathetic? Or could the spleen, so greatly enlarged, have mechanically interfered with the action of the diaphragm? Extreme marasmus, accompanied by a good appetite, would seem to point to some interference with the passage of the chyle into the blood, and it was this view which gave rise to the opinion that the mesenteric glands were the primary seat of mischief. Beyond this we did not get; and when all the surrounding difficulties of diagnosis in an obscure case of this character are thought over, it is not, perhaps, altogether to be wondered at that we failed to alight upon the actual cause of all the mischief.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from p.* 15.)

"BREAK-DOWN," as it is commonly termed, is a very significant one, inasmuch as it invariably puts a stop to the career of an animal for some time, and often for ever interferes with his racing quali-

fications, depending upon the seat and nature of the injury—which injury, *en passant*, is generally produced by violence. There are several kinds, one of which is met with in young, leggy, and well-bred horses, which is nothing more than a rupture of the fibres of the cellular tissue connected with the flexor tendons; a second is when the sheath of the tendon has given way; a third, when the tendon itself has been injured; and a fourth, when the lesion is situated in the suspensory ligament. There are other kinds of "break-down" known to horsemen, such as giving way of the lateral ligaments of the sesamoids, and also a similar injury to the tendons, etc., below the pastern-joint. The appearances met with in this affection are familiar to most persons, and consequently very few can be found to invest money in an animal possessing this defect. There are, however, horses purchased by a certain class, who find them extremely useful as porters for light work, car-drawing, and other labour where, happily, they do not draft more than from ten or twelve stone weight. Horses which have been properly treated are found to do their work in a way satisfactory to their riders and drivers; but it must be confessed that a very long time is occasionally required to bring about such a result, especially when the lesion has been a serious one. The principal thing veterinary surgeons have to consider in examining such a horse, is to thoroughly understand the parts which have been injured, to reflect upon the structure and function of these parts, and what the nature of the repair to be effected is, and what work will he be called upon to perform. These are the principal questions to be considered when we find such a case presented for examination. If merely cellular tissue has given way, it becomes a simple affair; if sheath of tendon, our interest increases; should it be a tendon itself, more serious still; and if the suspensory ligament be the seat of injury, then it behoves us to look not merely closely into the matter, but we must give a few moments to thought, and endeavour, if possible, to ascertain with certainty whether the injury has left behind any impairment of action: for very much of our reputation depends upon the kind of opinions we advance when an unsound animal is recommended to be purchased. In these days we shall be frequently called upon to scrutinise an unsound horse, and very often, no doubt, advise our clients to take the animal, although *pronounced* unsound. The most serious of all the "break-downs" I have met with, is when the lateral ligaments of the fetlock-joint participate with that of the suspensory, being, as it were, "off-shoots" of this, as some term it, "tendon"; and we may naturally seek for a participation of any great violence sustained by that ligament in the small appendages which are thrown off for the support of the sesamoids as well as of the extensor pedis, from the

carpus to the joint below, made up, as it is, of the lower end of the metacarpal bone, the suffraginis, and the two sesamoids. So much diversity of structure is here met with, that we need never feel, as some do, astonished to find our hands and eyes at fault when lameness exists in the front leg, if we can neither see nor feel anything wrong upon a slight examination. If we will but take into consideration the fact of the suspensory ligament being unlike any other ligament or tendon, and that bursæ are situated immediately underneath it, we can, I think, account in some measure for the difficulties we occasionally meet with in diagnosing lameness.

I fear we do not sufficiently bear in mind the many peculiarities which exist in the various structures present within a given space. I have before hinted that the fetlock-joint is not only an important one, but exceedingly complicated as a piece of mechanism. For example, let us look for a moment into its component parts, or, in other language, the anatomy of the joint—taking into account the different textures which go to make up the whole; then the situation of those parts, as they are related to each other in a passive state, comparing them with each other during locomotion, and consider their uses; and, lastly, dwell a short time upon the pathology of the whole joint, which will, I have no doubt, give us some idea of the many difficulties met with, and account for some of the failures which are occasionally witnessed by those who are more sanguine than others in their practice. There are several methods adopted for ascertaining the probable extent of injury in a break-down. The usual one employed by myself is that which others doubtless make use of, which is simply flexion and extension, and displacing the common integument both upwards and downwards, as well as in a lateral direction. By these means it will soon be learned whether any change has taken place in any of the structures. In one instance, an enlargement of the parts will be observable; secondly, the skin will be closely adherent to the sheath of the tendon, the tendon and its sheath cemented together, the tendons and suspensory ligament become as one.

In another it will be found that the ligament is fixed to the metacarpal bone, and, lastly, it becomes apparent to the close observer that the suspensory ligament is so changed that it has lost its peculiar character, a hard cartilaginous substance being produced in its place. In each and every case impairment of action is the result, the extent of which will depend upon the nature of the parts affected, and, it may be added, the derangement of function will be visible in the same ratio as the alterations of structure which have been attempted to be described. A short time ago I met with a case in which integument, cellular tissue, sheath of

tendon, tendon, ligament, and metacarpal bone were all amalgamated.

This animal was destroyed by my wish, and it afforded much information of an interesting kind afterwards. On looking at a dried specimen—a dissection for ligaments and tendons of a foreleg—we shall be forcibly struck with its beauty and admirable arrangement for all the purposes of locomotion. At the same time we cannot avoid thinking how much simplicity is manifested in some portions of the limb, and it will be conceived without much reflection that, the simpler the arrangement, the less liability there is for impairment of function. If we take, for example, the shoulder-joint, made up, as it is, of soft parts chiefly, we can soon understand how it is those parts are so seldom found to suffer injury. We all know that the farriers of old, and some of the modern practitioners of veterinary surgery who do not possess a knowledge of anatomy, will look to the shoulder for most cases of lameness in the front limbs. Those, however, who have received a liberal education are fully aware of the many blunderers who have preceded us.

Take another example—the structure of the parts connected with the large metacarpal and the smaller bones. We find the anatomy between the lowest carpal joint and the fetlock particularly simple, which will account for the immensity of wear and tear these several parts will bear. Nothing short of a shock will disturb these structures, if we except that of Splint and what is termed "Windgall." If they were not so constructed, disease would more frequently manifest itself.

I believe it is a law in mechanics that a simple spring is not so liable to err as one of a complex character; and so it is in the animal machine. We must not lose sight of other arrangements in this particular part of the animal mechanism. For instance, we should well consider that the metacarpal bone, the suffraginis, and the coronal bone are standing one upon another, *perpendicularly*. There is, indeed, not much obliquity at any part. We may, therefore, take it for granted that there must be considerable concussion, especially if the parts below are upright also. These reflections will guide us in some measure as to any opinions we may form, when spoken to in reference to upright joints. On looking at the close connection existing between the metacarpal bones and the suspensory ligament, we can readily understand how an abnormal growth of bone must interfere with the even working of those parts (if carried to any extent), and more particularly by the setting up of inflammation. We sometimes hear of the tendon being rubbed against by a splint and causing lameness. I am inclined, however, to believe that the parties who hold such

opinions know but little of the subject upon which they dilate. If we look closely at the suspensory ligament at its bifurcation, we shall remark that it is making its way towards the lateral portions of the sesamoid bones, that these offshoots become intimately connected with those small bodies—an arrangement which tends to hold them in position. Still, it can be seen they have play enough to go out of position if forced. If any portion of the suspensory ligament, either above the bifurcation or below, becomes materially injured, it must of necessity include some portion of this joint. It is the peculiar arrangement of the ligament, running, as it does, from behind the limb to the front, to form its attachment to the extensor tendon, which accounts for the fact that serious lameness is the result of a break-down of these particular structures; and it must be observed that when a limb is very upright and the fetlock goes wrong, in many cases it will be found that inflammation will set in and include all the structures found at this place. I have some specimens, which have been in my possession some time, taken from young horses—hunters—which are remarkable for what I have stated, viz., that all the parts connected with the fetlock-joints are diseased, more especially the bones. I may describe one case, which will suffice for all. A bay gelding, with upright pasterns, was ridden by a client—who was much too heavy and too hard a rider for so young and unseasoned a horse—for some months, when the animal gave way; in other words, broke down in one fetlock-joint. The other was slightly affected also. The owner treated the case at his stables for some weeks in the usual manner, by employing water.

(*To be continued.*)

ON RELAPSING FEVER OF EQUINES.*

BY J. H. STEEL, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, BOMBAY.

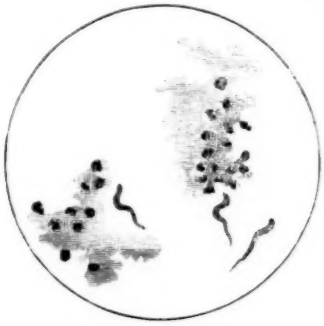
IT has recently been my good fortune to study, with exceptional practical facilities, a disease of animals of the Horse tribe, which is one of very serious import in India certainly, probably also in other countries. This disease is of special interest from a comparative pathological point of view, because it resembles very closely in its phenomena, as observable *ante* and *post mortem*, that of mankind, which has been dealt with in such an elaborate manner by your President in his work on "Spirillum Fever." Unfortunately in some respects, but fortunately in others, I had an opportunity of studying Dr. Carter's work only after I had completed my official report on the Burmese disease, which is being printed under orders from the Madras Government.

* A paper read before the Medical and Physical Society of Bombay, to appear in the Proceedings of the Society. A sequel to Veterinary-Surgeon Steel's Official Report on Relapsing Fever among Mules in British Burma.

I might have re-prepared the report in question, but I preferred to let what was written remain, because it would, as being quite independent of modelling on Dr. Carter's work, be of greater value for comparison with the latter, if it be permitted to compare my report with so elaborate a work as Carter's "Spirillum Fever." I think the comparison will throw into great prominence the close relationship (probably not amounting to absolute identity) of the two disorders—that of man and that of the equine patient. And as the induced disease has in each case been studied as affecting the monkey, I think it probable that an examination of the phenomena of the disorders as thus capable of study, *on a common ground*, will be found to yield results of the greatest value in the advancement of pathology. Another matter to which I wish to draw your attention is the fact, which I believe I have amply established, that whereas by certain methods, which I shall indicate, the equine disease may be induced in carnivora and omnivora, we have failed to communicate it to certain ruminants in a detectable form. This may be pregnant with important results in the future, from a prophylactic point of view; it may be that the observers yet to come may, by development of this immunity of certain ruminants from the induced disease, be able to determine how it may be prevented and cured in horses, ponies, and mules—animals in which it has hitherto proved *invariably* fatal.

I append to this paper specimens of the mule disease as taken from my "Record of Sick Cases." From them it will be learned that the disorder is essentially a Relapsing Fever which wears out the patient, because the amount of injury to the system during the fever waves is greater than can be compensated for by the recuperation during the periods of less fever, the interundular phase. In this disease fever is a prominent system, but fever of a special relapsing character as detectable by simple clinical methods, but much better by use of the thermometer and thermography (to ensure exactitude the two must go together, and it will be found that the resultant tracing is conclusive evidence of the nature of the attack). *I look upon Relapsing Fever as remarkable on account of the exactitude with which it may be diagnosed, without the smallest chance of error.* Even if the thermometer failed, we might still exactly determine the presence and nature of the disease by means of the microscope and Weigert-Koch blood-stainings (the adoption of which by me in the inquiry was due to suggestions kindly telegraphed by Dr. Vandyke Carter). A microscope of very average power suffices for all purposes of diagnosis in this disorder, and for the stainings I found that much simpler manipulative methods sufficed than one would anticipate from the descriptions generally given. Simplicity is, doubtless, an advantage in all clinical inquiry, but it is an absolute necessity to a veterinary worker in a country where skilled assistance and elaborate appliances are not obtainable, and where the only laboratory procurable is one improvised in some corner of a Government building. I do not think pathological inquiry loses by simplicity of methods; the amount of ground got over compensates for deficiency in elaboration of methods, and the richness in numbers of observations atones for the deficien-

cies of each individual one, and so guards against flagrant error. Simplicity of methods enables us also to utilise unprejudiced persons, by obtaining their opinion on matters of simple appearance where our preconceived ideas may tend to lead us into error. I am able to show you some sketches of the fever parasites made by a highly intelligent Transport Conductor (Mr. Smiles) from stained-blood specimens which I lent him with my small microscope.



He has accurately delineated the *spiral* form of the parasites, a point in favour of which my mind was biased, because my statements with regard to it have been called into question. You can examine this matter yourselves from my specimens. Careful observation of blood obtained from the living animals showed that—(*a*) the parasites were invariably present at times in all cases of the disease ; (*b*) they were not detected in any unaffected animal ; (*c*) the phases of the disease bore a definite relation to the frequency and activity of the parasites in the blood, fixed within not very wide limits ; (*d*) it was easy to account for the phenomena of the disease by accepting the hypothesis that it was due to the parasites ; (*e*) blood containing parasites conveyed the disease to animals previously healthy, and the more numerous and active the parasites in the blood the greater its virulence ; (*f*) the presence of a single parasite in a drop of fresh blood sufficed as proof of the animal from which the blood was taken being a victim of Relapsing Fever. This was repeatedly proved clinically, especially in the induced disease. I think these facts amply establish two important points :—

I.—That in Relapsing Fever of equines we find a specific organism in the blood having such fixed and definite relations with the disease as tend to make the belief that the parasite is actually the contagium—a sound working hypothesis, if not absolutely proven.

II.—That the relations of the specific organism found in Relapsing Fever in mules are to that disease as are those of Spirochæte Obermeiri to Spirillum Fever of man ; and, moreover, the habits of the parasites of mule and man are very similar.

Relapsing Fever of equines has long been known to affect horses, mules,

and camels in the Punjab. I do not, for a moment, lay claim to having discovered either the disease or its concomitant parasite. The earliest scientific investigation was by Dr. Griffith Evans, now Inspecting Veterinary Surgeon, Madras Army, who discovered the blood organisms, and accurately described and recorded their activities and appearance in the fresh state. Dr. Evans proved the communicability of the disease from one horse to another, and from horse to dog, by inoculation. My claims as regards our knowledge of this disease are :—(1) that I have proved its true pathological nature, *i.e.*, that it is a Relapsing Fever ; (2) that I have established its communicability to the *monkey* by inoculation ; (3) that I have much amplified our clinical and pathological knowledge of the affection ; (4) that I have confirmed Dr. Evans' important discoveries ; (5) that I have indicated, with as much force as I am capable of, the very striking resemblance of the equine disease and its organism to those of man, and have insisted on their close *relationships* respectively, although I do not consider them absolutely identical.

The symptoms of either natural or induced Equine Relapsing Fever may be explained, generally, as progressive anæmia and its results, modified by the Relapsing Fever, with its peculiar exacerbations lasting some five days, and separated by intervals of about two or three days, continued until the animal ultimately succumbs. *Every animal which I have seen affected has died.* A characteristic feature of the disease, and one which seems to be in direct and close relations with the activity of the parasites in the blood, is the occurrence of *crops* of petechiæ, especially detectable on the conjunctivæ. They seem to occur when the parasites have attained their maximum activity and frequency, and when the temperature curve begins to fall. The skin occasionally, and the mucous membranes of the mouth and nostril frequently, are the seat of petechiæ and of very limited degenerations from malnutrition, probably the result of plugging of their small nutrient vessels. We see this plugging on a much larger scale bringing about a defective supply of blood to the limbs, especially the hind ones, for *ante-mortem* clots are very frequent in this disorder, and may prove the immediate cause of death. Frequent dropsies and sluggish vitality of all the tissues, indicate the depraved state of the blood. Some cases are acute, and prove fatal after supervention of general dropsy, associated with local congestions; probably the immediate cause of death in such is fever, for in my most acute case the animal, about an hour before death, gave the extraordinarily high thermometer reading of 110° F. In the chronic cases—that is, in about 96 per cent.—death is brought about by gastric perforation, *ante-mortem* clot in the heart, or simply failure of the heart's action as a result of debility. The animals remain standing to the last, and suddenly fall dead, or are recumbent and delirious for some days before the fatal result. Although the animals among which this disease has been studied as an enzoötic have been generally found in very poor condition, I have evidence that the disease is not, in prevalence or severity, in direct association with poverty of

condition or bad feeding. I have studied it among animals recently imported into Burma, but have concluded that the disease was not brought with them from the place whence they were exported, and *I have a great deal of evidence that the disease is not contagious nor infectious.* It occurs independently of extremes of temperature, during close seasons, and generally after exposure in the jungle, with corresponding irregular food supply and consumption of water from doubtful sources. Its fatality is most marked in October and November. It exhibits an evident disposition to invade certain localities in certain years, being either quite absent from those places, or, at other times, as is generally the case, remaining in a sporadic form in places once invaded. It prevails mostly in animals housed together in large numbers and in immediate charge of natives; the facts that grey and white mules suffer most, and that large mules are more often affected than small, were well marked in Burma. Animals of all ages succumbed, and sex seemed to exert but little, if any, influence. Treatment gave only negative results.

I am much inclined to lay considerable stress on the fact that predisposition seems to exert so little influence over this disease, because it seems to indicate that we have little chance of securing immunity by fortifying the system against it; and so our efforts must be directed to preventing the access of parasites to the system, or to their destruction after they have gained entry. How that access generally occurs naturally I cannot say, but I consider generally through the alimentary canal. Experiment proves positively that the disease may be obtained by ingestion of food containing the parasites, and also by the subcutaneous injection of fresh parasite-bearing blood. The disease incubates in the system for a period which varies, to an extent, with the mode of entry of the parasites, possibly also in accordance with other, as yet imperfectly ascertained, causes. Autopsy, by the indefiniteness of the lesions detectable, indicates the blood as the main seat of disease. So various are the organs involved, and so indefinite and irregular the changes which they undergo, that these changes can be attributed only to derangement of the tissue which is generally diffused throughout the body—the blood. I arrived at this conclusion some time before I assured myself of the presence of micro-organisms in the blood. One very remarkable lesion was found in three-fourths of my cases, and not noted in any of those carefully studied by Dr. Evans—gastric ulceration. I decided that it was really a lesion of the disease, although not invariably present, but was enabled to arrive at this conclusion only after most careful and elaborate observation and argument. The part of the gastric mucous membrane which specially showed this ulceration is the cuticular, and as that part is not found in the stomach of man, such ulceration could not be noted in Human Relapsing Fever. Occasionally, also, the villous portion was affected. The ulceration in some cases extended even to perforation. It was brought about by a peculiar yellow degeneration of the tissues, and I think it depends on embolic plugging of the small blood-vessels of the stomach. In acute cases

there is a diffused congestion of the lining membrane of the bowels; in chronic cases there are small localised patches of congestion. Green gelatinous extravasations between the muscles of the thighs; greenish-white blood clots in the larger vessels (a short time after death); *ante-mortem* clots, especially in the blood-vessels of the hind limbs; œdema of the brain and spinal cord; heart fatty; kidneys congested or œdematous; lungs congested—are the principal other lesions found after death.

The Comparative Study of the Disease.

In the mule there are certain peculiarities of different cases worthy of note:—*A.* Mule No. 13.—Experimentally I obtained the most typical chart from a case induced by the administration of mixed blood (containing spirilloids) and water as a drink to a thickset mule in good condition. The effects were as follows:—

(*a*) An evanescent rise in temperature of nearly 2° on the evening of experiment.

(*b*) An *incubation* of six days.

(*c*) On sixth day after inoculation the *invasion* rise began; it was 5° the first day, $\frac{1}{2}$° in two successive days (eighth and ninth) to 105°, a fall of 2° on tenth day, of over 3° *to the normal* on eleventh day. No appreciable rebound.

(*d*) *First fever-free interval* of two days (twelfth and thirteenth).

(*e*) *First relapse.*—A rise through $3\frac{1}{2}$° first day, 1° second day, 2° third day, to a maximum of 106·5° F. A fall through 4° on first day, and $2\frac{1}{2}$° on second day, *to the normal.*

(*f*) *Second fever-free interval* of two days.

(*g*) *Third relapse.*—Rise through $1\frac{1}{2}$° first day, $\frac{1}{2}$° second day, $\frac{1}{2}$° third day, to 102·5°. The reading remains here for fourth day, and then on fifth day falls to normal, and on sixth day *below normal.*

(*h*) A slight *rebound* on seventh day, then fall to below normal.

(*i*) *Two days interval*, below normal.

(*j*) *Fourth relapse.*—Rise through 1° on first and 3° on second day to 103°, a fall of 2° daily to normal on second day.

(*k*) The temperature remains normal one day (thirty-fourth after inoculation).

(*l*) The next nine days are occupied by three acute rises to 103°, 104°, and 104° respectively, separated by two imperfect falls to 100° on third day and to 101° on fifth day. On the ninth of these days the reading is a little below the normal.

(*m*) It remains so one day.

(*n*) The next six days occupied by three rises and three falls on alternate days ($\frac{104}{100}$), ($\frac{102}{101}$), ($\frac{103}{99}$).

(*o*) The temperature remains about normal two days, then rises two days through 103° to 103·5°, falls to 101°, rises to 102°, falls to 99·5°, rises to 105·5°. Then falls in two days (through 101°) to 99°.

(*p*) It rises to 101° next day, remains so one more day, then up to 103°, down to 101°, up to 105°. Then a marked fall to 98·5°.

(*q*) Rise to 99°. Rise to 105°. Fall to 100·5°. Remains so for two days.

(*r*) Rise to 105°. Then fall for three days (102°—99°—to 98°), remains so one day.

(*s*) Rise to 104°, fall to 101°—remains so one day. Observation ceases after 83 days from rise. The deductions to be made from this prolonged record are: that after an incubation of six days three fever phases can be observed, each consisting of a rise for three days and a fall for two days, and these are separated from each other by intervals of two days, during which the temperature regains the normal. Then occur less regular rises, variable in degree, and separated by depressions variable in degree, but seldom below the normal until towards the last. There is a tendency of the rises to group in threes. The parasites were in this case most often found at the periods of most fever. It is hardly practicable to determine the number of relapses here—the case was seventy-seven days under observation after the first rise of temperature.

B.—Mule No. 17 received subcutaneously, on right side of centre of neck, about 75 m. of blood freely drawn, without contact with air, from the jugular of No. 5. In this blood parasites were not at the time detectable. The following phenomena resulted:—

(*a*) An evanescent fall in temperature after the experiment.

(*b*) The *incubation* of 7 days.

(*c*) On the seventh day after inoculation the temperature rose, which continued four days to 104° (*i.e.*, 5° above normal). The parasites first appeared during the latter half of this rise. A fall of 2° on eleventh day was associated with increase in number of the parasites; a second rise of 1° occurred then, and lasted one day, after which for five days there was a gradual fall through 4° to the normal. This fever phase lasted in all twelve days.

(*d*) There was no fever-free interval: parasites were absent in the later stages of fall.

(*e*) A sudden sharp rise of 3·5° in two days to 103·5°, and a slow fall, extending over six days, to the normal, constitutes the *first relapse*, giving a shorter and smaller curve than the invasion phase.

(*f*) From this a fluctuating rise for about twelve days, in the latter few of which the parasites were very numerous, preceded death—40 days after inoculation.

The prolonged period of incubation here is of interest in relation to the fluid used for conveyance of the disease, showing that the incubation is long when the parasites are not actively mobile in the blood.

C.—A remarkably similar curve to the last was obtained from a pony in whic the disease proved very acute, fatal on the 20th day after inoculation. The parasites were extremely numerous here, and increased in numbers towards the time of death.

(*a*) The *incubation* was four days.

(*b*) On 4th—7th a rise of 3° occurred, the parasites being present through-

out. *This was the earliest case of appearance of them in the blood of an equine animal noted by me* (*on 4th day*). Then a fall set in, extending through six days, during which the prevalence and frequency of parasites in the blood was very uncertain.

(*c*) The *first relapse* was a rise through 3° in two days and similar fall—the parasites present all the time.

(*d*) Immediately another rise began, and death then occurred.

D.—Mule No. 18 received three syringefuls of heart's blood of Mule No. 12 obtained one hour after the death of that animal. No parasites could be detected in the blood at the time, nor were the parasites detected in No. 12, blood on the preceding day; they were the day before that. Normal temperature of this experimental mule was very low :—

(*a*) A rise of temperature commenced on the third day, *i.e.*, very short incubation.

(*b*) The rise was through 4·5° F., and lasted three days, to 102°. On the sixth day the parasites were very numerous ; they remained present for three days, were then absent for three days, during which time the temperature sank to 99·5°.

(*c*) After this fluctuating temperature, indefinite presence of parasites, and absence of well-defined relapses, characterised the case, until I was compelled to cease my observations, on the 33rd day ; just before this, the symptoms seemed about to assume some regularity.

E.—Mule No. 12 or XV. was inoculated subcutaneously with parasite-containing blood and water mixed.

(*a*) The principal rise of temperature occurred on the 4th day of *incubation.*

(*b*) The *invasion* rise and fall lasted to 11th day, then after three days,

(*c*) The *first relapse* occurred, which lasted 4 or 5 days, and was followed by—

(*d*) The *second fever-free period* of 3 or 4 days. Then,

(*e*) 7—9 days, second relapse followed by a short *rebound.* The relapse is divided into the well-marked parts by a fall on one occasion to 100·5°.

(*f*) After another abrupt rise (third relapse ?) and fall.

(*g*) And a short parasite-free stage.

(*h*) The final relapse (with three rises) set in, and proved fatal on 44th day after inoculation.

Death was premature, having been brought about by entanglement of an old clot in the *cardiac orifice of the pulmonary artery.*

I find, on careful examination of the charts of these five cases of the disease, as recorded from the beginning, the following difficulties :—

(1) Where should the common point of departure and comparison of the tracings be taken ? I decided to take it from the commencement of specific rise in temperature. Thus I found the period of incubation after subcutaneous injection to be 4 days, whereas after gastric injection, and subcutaneous injection of blood apparently free from parasites, it was 7 days.

(2) Is the second rise a relapse or a rebound? I think the former, since in cases of Mule No. 17 and of the pony the parasites had reappeared, and were numerous and very active in the blood during this second rise. Yet, for comparison with Dr. Carter's tracings for man, these ought to be called rebounds.

We must now compare these artificially-induced cases with some of the disease as acquired naturally. Of them I am not able to state absolutely the date of disease invasion, for they were generally sick some time before the attack was reported. In them we see that the temperature tracing has assumed the chronic character, and, with morning and evening records, gives the "*cat's tooth*"-like curve for each relapse. And for each relapse must be reckoned a period of 7 days.

(*To be continued.*)

Editorial.

THE CHEMICAL AND MICROBIAN THEORIES OF DISEASE.

The great impetus given to the progress of Medicine by the researches of Pasteur and his disciples, which have demonstrated the very important part played by micro-organisms in the production of disease, forms one of the most notable events in the history of the latter half of the nineteenth century. The biologist has, in this branch of investigation, usurped the place formerly claimed by the chemist, and it cannot be denied that he has established a strong claim to. Pasteur, himself a chemist, has been chiefly instrumental in overthrowing the pretensions of chemists to solve for us the mysteries connected with contagious diseases and putrefactive processes, as well as those of fermentation, by showing that these depend upon the agency of microbes. The theories of Liebig, Berzelius, Mitscherlich, and others, who taught the doctrine of catalytic force, in which the contact of one substance with another could, it was asserted, produce all the phenomena observed in these processes, were upset, or at any rate relegated to a back shelf, though not without a struggle, and a passive determination to hold on to them. The chemists have neither universally nor unhesitatingly accepted the bacillar theory of the etiology of contagious maladies; indeed, some of them have been its most determined opponents. And the recent discovery of what are designated *Ptomaines* and *Leucomaines*, has been brought forward by them in support of the hostile position they have taken up, as it affords evidence, according to their view, that new matter can be formed in the body, which will give rise to morbid changes, without the aid or intervention of microbes. This new doctrine of the pathogeny of disease is now being closely scanned, and it is not improbable that, after all, it will be found that in the production of these poisonous alkaloids micro-organisms have some, if not the principal, share. It has long been suspected that the bacillus of Anthrax, for instance, produced its lethal effects not so much by its mere physical presence, as by its transforming the fluids with which it came in contact into a substance poisonous to the tissues, or by secreting something which destroyed their vitality.

However this may be, pathologists cannot afford to ignore any efforts that are made, whether by chemists, biologists, or physicists, to elucidate the etiology of disease; and the latest development of the chemical doctrine possesses interest and importance in this regard. Professor Gauthier lately read a paper on the subject of the Alkaloids of Animal Tissues, before the Paris Academy of Medicine, of which an excellent summary has been given by the French correspondent of the *British Medical Journal*, and we think our readers should be made acquainted with it. In the paper it is pointed out that, in the course of putrefaction in animal tissues, a certain number of poisonous alkaloids are called into existence. The alkaloids of putrefaction vary according to the character of the medium in which they develop, also according to the period that bacteridian fermentation begins. Hydropyridic compounds are almost always present; they are apparently the alkaline products of the most enduring bacteria, which live and suppress the others. In the excretions of healthy living animals there are substances of the character of ptomaines. The alkaloids of urine found by Liebricht and Pouchet ought to be ranked with alkaloids of putrefaction. There are similar ptomaines in saliva and snake-venom, which M. Gauthier names leucomaines, in order to distinguish them from the alkaloids that form in dead bodies, called ptomaines. In 1881, M. Gauthier published a memoir, in which he dwelt on the importance of the leucomaines in connection with the genesis of disease, when renal elimination, or that of the skin and intestinal mucous membrane, was insufficient. Later on, M. Gauthier studied the muscular juice of large animals, and extracted five new definite crystallised alkaloids acting with more or less energy on the nerve centres, causing sleep, fatigue, and in some instances vomiting and action of the bowels, but in a less degree than ptomaines. These substances are called into existence during life, just as are carbonic acid and urea. The transformations of the tissues of the higher order of animals are, in a large proportion, of the anaerobic order. M. Gauthier observes that this proposition may appear paradoxical, but he believes that he will demonstrate it experimentally and theoretically. Four-fifths of the products of animal combustion are positive aerobic formations, comparable to the oxidation of alcohol under the influence of mycoderma vini or aceti. The fifth part of the combustion of the animal economy takes place at the expense of the tissues, without oxygen playing any part in the process; or, in other words, that portion of the tissue lives, like the anaerobic or putrid ferments. Most of these toxic alkaloids are easily oxidised; they enter into combustion, and disappear or do so in part. In a normal condition, a very small proportion of muscular leucomaine is found in urine. But if the air that reaches the blood be diminished in quantity, or the proportion of hæmoglobulin be diminished, as is the case in Chlorosis or Anæmia, or if substances be introduced into the blood which prevent hæmatosis, substances of the character of leucomaines or ptomaines accumulate in the blood. M. Gauthier further states that, with these toxic alkaloids, there exist nitrogenous substances, not alkaloids, which are still more poisonous. The septic poison of Panum contains hardly any alkaloid.

AN INFECTIOUS DISEASE IN HORSES.

BY DEPARTMENTAL VETERINARY SURGEON, DR. SCHMIDT, AACHEN.*

IN the months of February and March of this year (1885), a peculiar disease broke out in a stud of twelve horses, upon an isolated farm in the neighbourhood of Aachen, which was so puzzling in many respects, that it may not be out of place to publish the observations my colleague, Knur, and I made. Perhaps the disease has been noticed in other districts, and, maybe, some of our colleagues have succeeded in making its etiology clearer than we.

Between the 15th February and 6th April, eight horses were attacked with similar symptoms, and died. A table is given below, showing the number as they were successively attacked. They were well fed, but not too fat.

Without any premonitory symptoms, the animals were seized with a peculiar stiffness in the hind-quarters ; they lay down at unusual times, but soon got up, only to go down again, and were then unable to rise. They could only raise the fore-quarters, and their greatest efforts, even when assisted behind, could bring them no further. They remained squatting like dogs. Their appetites were normal, and they enjoyed both fodder and drink. Their expression was lively, the ears moving to and fro, as usual. In a word, psychologically, there was nothing out of the common. The pulse and heart-beat were normal (36—40, full and soft). The internal and external temperature showed no unusual change. The first varied from 38°—38·5°C. in different animals. The fæces were voided in sufficient quantities, in balls; the urine was generally quite clear, sometimes yellowish-white, and free from albumen. The respirations numbered 10—12, without any unusual working of the ribs or flanks. Sensation in the hind-quarters was somewhat impaired, which was demonstrated by pricking with a needle. The mucous membranes were normal.

These phenomena remained unchanged for several hours, but never more than one and a-half days, after which the paralysis in the hind-quarters passed also to the fore, so that the patient lay flat upon one side or the other. From time to time violent movements with all four legs took place, during which the respiration was increased.

The internal temperature, even then, never exceeded 39°C ; indeed, in two instances Mr. Knur observed the temperature sink to 37°C. only twelve hours before death. The urine remained unchanged in colour until death, but in larger quantities. Two mares were noticed to micturate in drops, involuntarily, showing that the sphincter vesicæ urinariæ was paralysed.

Death followed rapidly, its approach being signalled by increased respiration and pulse, great restlessness; partial sweats in some, anxious appearance in all, cases. The immediate cause appeared to be paralysis of the heart.

The appetite, until shortly before death, remained, and the animals endeavoured to eat the litter they were reposing on. The bowels also remained normal. No brain symptoms were observed, and the pupils remained unaltered.

The symptoms in a four-year-old stallion differed from the others, the first being those of Pneumonia. There was cough, very frequent breathing, abnormal vesicular murmurs, temperature 41·2°C. These symptoms were followed in a few hours by the paralysis already described.

The blood which was abstracted from the jugular vein of this and the other horses had its normal colour, and soon formed a solid clot, with little serum. Microscopic examination, by us and other specialists, of the blood and spleen revealed no parasites. Professor Lustig, however, informed us he found two species of bacteria, but stated he attached little importance to this, as

* Translated from the "Archiv f. Wisserschaftliche Thierheilkunde," by F. Raymond, F.R.C.V.S., A.V.D.

the blood had been sent to him in large quantities, and had not been examined until thirty-six hours after.

The horses were attacked and died as follows :—

Horse No.	1,	attacked on	15th	February,	midday	..	died,	15th	February,	evening.
,,	,,	2,	,,	15th	,,	afternoon	..	,,	16th	,,	,,
,,	,,	3,	,,	17th	,,	noon	..	,,	19th	,,	noon.
,,	,,	4,	,,	19th	,,	,,	..	,,	21st	,,	,,
,,	,,	5,	,,	18th	March,	10 a.m.	..	,,	19th	March,	5 p.m.
,,	,,	6,	,,	18th	,,	,,	..	,,	20th	,,	morning.
,,	,,	7,	,,	3rd	April,	morning	..	,,	5th	April	,,
,,	,,	8,	,,	6th	,,	,,	..	killed	8th	,,	

This table shows that twice the outbreak paused for a few weeks : between Nos. 4 and 5, and 6 and 7.

After the four first cases had ended fatally, the food and the water were changed. On the 18th March, when Nos. 5 and 6 were attacked, the old stable was vacated and a wooden shanty, upon the farm, was occupied by three horses ; and two were placed in a cow-house. On the 31st March, a mare heavily in foal, which had been sent to a neighbouring farm, returned, and was located in the shanty. She was fed upon oats and hay, sent from the other farm, only, and was watered, like the others, from a well near the estate. On the 3rd April, she was already completely paralysed. Again, No. 8, purchased on the 7th March as substitute, was attacked on the 6th April, and destroyed on the 8th, completely paralysed. Upon the occurrence of the last two cases our original opinion, that the outbreak was due to so-called stable miasma or poisoning by food or water, was changed : for horse No. 7 stood in a provisional stable, well ventilated but not draughty, and was fed upon forage imported from a neighbouring estate'; No. 8 had stood for some time in the cow-house, and had been fed upon purchased forage. Nevertheless, the cause is to be found on the farm ; but where ? Of what does it consist ? Up to date, this puzzle has not been deciphered. It appeared certain that we were dealing with an infection or poisoning of some kind, and therefore every point which, in any possible way, could be connected with the disease received our greatest attention, but with no satisfactory result. The first item which attracted our notice was a water-trough, situated in the middle of the straw-yard. The water it contained was a thick, foul (?) fluid, and analysis here and in Cologne showed a great percentage of organic substances. One litre was found by Dr. Schridde to contain 2·072 grs. solids. These consisted of 1·298 grs. in organic salts, and 0·774 grs. organic substances. Of the last, there was, therefore, 15½ times more than should be found in good drinking water, according to Von Pettenkofer. The use of this water was discontinued, and other, from a well situated near the estate, substituted ; yet the disease continued its ravages. The oats were unobjectionable, the hay well harvested, and consisted of good grasses only, with clover and herbage of that description. It is true there were a few leaves of colchicum, but only in the proportion of 20 grs. to 9 lbs. of hay. Equisetum, which has been known to give rise to similar disorders, was not to be found. Although nothing was discoverable in this forage which could injure animals, it was also changed ; but without result. The removal of the horses, as above described, gave no satisfactory result. Further : to discover if the disease was communicable from one animal to another, inoculations were instituted upon sheep, a horse, and mice, with fresh blood taken from the sick and from the carcases. The results were negative.

As noteworthy, we mention that between the 15th February and 18th March, a spiritual gentleman endeavoured to cast out any unclean devils which were present, by prayers, etc. Even this method of attack was powerless.

The mysteries of the malady were not solved by autopsies undertaken imme-

diately after death. The *post-mortem* of No. 8 (which would have died in a few hours, had it not been slaughtered) showed absolutely no organic changes ; the blood was also normal, and formed the usual clot at once. The flesh was quite healthy. Speaking generally, the following *post-mortem* observations were made :—The skin and muscles of the side upon which the animal died were dark red ; the other muscles normal. The diaphragm was smooth and glistening, the lungs mostly congested, but without other pathological change. Horse No. 5, which was first attacked with Pneumonia, had the tongue-like lobes of both lungs hepatized and the pleura pul. covered with a soft, fibrous coat. The heart was soft and atrophied, and strikingly pale ; the chambers contained a little coagulated blood. The endocardium was occasionally red ; in some instances the pericardium contained about a pint of red fluid. As regards the large glands of the abdomen, nothing was abnormal except the liver, which was friable and clay-coloured.

The stomach was only altered in No. 7. In this case the mucous membrane of the cardiac portion was reddish-brown, considerably tumefied, and in many places eroded. The centre of the erosions was intensely red, the edges irregular and raised. The contents of the stomach was bloody. Bots were not to be found, neither could Dr. Schridde detect any traces of poison. The small intestines of several animals showed numerous small red marks, about the size of a pea ; and also excoriations, of oval shape, and the size of a bean. The excoriations were dark red. Beyond this, nothing was to be noticed in the intestines or the glands. The kidneys and spleen were healthy in all the animals. In the brain and spinal cord nothing abnormal was discovered.

As to treatment, we found every agent employed, both internally and externally, useless. Violent and certain remedies refused to act. For instance, one horse received eserin subcutaneously, without effect ; and another took forty grains of aloes and sulphate of soda, followed by forty drops of croton oil, without laxation, and the bowels remained normal.

At last the old vacated stable was thoroughly disinfected, and in the beginning of May was occupied by newly-bought and healthy horses.

No fresh cases occurred amongst the horses, but in April a disease broke out in the cattle on the farm, which is rather prevalent in the district. It is characterised by paralysis of the pharyngeal muscles, which prevents the swallowing of food, water, and saliva. Three cows were attacked, one died, and two recovered when fed upon green forage. Musty hay was the supposed cause of the last outbreak.

A NEW DISEASE OF HORSES.

An interesting contribution to the knowledge of the peculiar disease of man, Beri-beri, has recently been made by Dr. Lacerda, director of the physiological laboratory in Rio de Janeiro. During a visit to the island of Marajó he investigated with a good deal of care, and with the help of Senor Gustavo Rumbelsperger, an epizoöty prevalent there, affecting chiefly horses and pigs, and known by the names "hip pestilence," "quebrabunda," "straddling disease," and came to the conclusion that this was identical with Beri-beri. The first symptom is debility, the animal losing its natural vivacity ; it then walks with an uneven gait, its nostrils dilate, and its breath becomes short, and the penis is protruded from the prepuce ; it then becomes restless and unwilling to remain in one position, constantly varying the point of support for the hind legs, keeping one of them always at rest. Shortly the characteristic symptom of staggering in the hind legs appears, the horse seeming to have broken his haunches and being unable to control the

movements of his hind legs ; the abdomen is retracted, the stools voided with difficulty as hard lumps, sometimes covered with mucus ; there is also dysuria. Usually there is neither anorexia nor great thirst, and only in rare instances is there any fever. Sometimes paralysis and dropsies appear ; ulceration, emaciation, and atrophy are also observed. The disease proves fatal occasionally in a few days, but some horses linger for weeks or months. Twenty-two necropsies were made, the blood being dark and viscous, and the viscera dark, swollen, and softened with ecchymoses in the bladder and omentum. The medulla presented sclerosis variously diffused, also a number of cells like the generative organs of ascomycetes and some mycelium. The water of Lake Arary in the island was found to contain a polymorphous microphyte belonging to the group Ascomycetes. This in its original condition, as well as when passed through several cultivations, produced in rabbits, pigs, birds, and monkeys inoculated with it symptoms closely resembling those of the "hip pestilence." The *post-mortem* appearances and cultivations of the blood in both cases were so similar, that Dr. Lacerda was led to believe that the "hip pestilence" is due to drinking the water of the lake. He, moreover, concludes from the symptoms and pathological appearances of Beri-beri that it is also identical with the "hip pestilence" of Marajó.

AIR AND ITS RELATIONS TO HEALTH AND DISEASE.

BY FRED SMITH, M.R.C.V.S., ARMY VETERINARY SURGEON.

(*Continued from page* 112.)

More examples might be quoted ; it is almost unnecessary to adduce the present low mortality amongst Army horses, as the facts are well known. Their healthy state is entirely due to the amount of pure air allowed them, for in no other circumstance of life do they differ from their predecessors of sixty years ago.

All we have said may be formulated in the precise language of Parkes : "Disease and health are in the direct proportion of foul and pure air."

We have thus endeavoured to prove by established facts the value of pure air, and the mortality produced by impure. It only remains now to deal with the different substances found in impure air, which contribute to the production of disease.

The Contagia.—By this is meant those particles of morbific matter constantly present in the air, according to some views, or occasionally present, according to others, which represent the poisons of specific diseases.

It is generally accepted that these poisons are particulate. With regard to some affections, these particles have actually been seen and isolated, such, for instance, as the poisons of Anthrax, Tuberculosis, and Vaccina. With other diseases, although the evidence of particulate poison is strong, yet the fact of their invariable presence is not so well established ; such is the case with Glanders, Pleuro-Pneumonia, Eczema-Epizootica, Cattle Plague, and Influenza. These particulate bodies are known generally as Bacteria, Bacilli, Micrococci ; or briefly, Micro-organisms ; that they are the actual disease-producers, and not the products of disease, has been proved in the case of Anthrax, Tuberculosis, and Vaccina, by filtering the liquid products of these diseases through a filter sufficiently fine to retain the solid particles, when inoculations made with the filtrate have proved innocuous.

It must be regarded as undoubted that the air is a means of conveying these Micro-organisms from one animal to another (see Kuchinmeister's experiment in producing Variola in a sheep); that it possesses this power in a more marked degree with some than with others is well known ; for instance,

the poison of Cattle Plague spreads with wonderful rapidity, and a vast tract of country is soon infected by it. The poisons of Anthrax and of Glanders are confined within certain limits; the latter more than the former; both of these diseases may devastate one stable, and leave another, quite close, untouched. We have no idea of the rules which govern the atmospheric diffusion of specific poisons. It is believed that the contagia of Eczema-Epizootica may be conveyed from 50 to 300 feet; whilst Influenza and Cattle Plague may be carried considerable distances. Once the contagia has left the body and escapes into the air, destruction is prevented by an albuminous coating, or by epithelial or pus cells, which may cover and protect it; in this condition it is carried about ready to infect, if deposited on suitable soil.

The length of time which the poisons of specific diseases retain their power to infect after they undergo the process of drying is not well ascertained but it is probable for some considerable time. Anthrax poison will keep for years; Cattle Plague the same; Vaccina will probably only retain its vitality for a short time; Glanders is very persistent. Extreme heat and cold have not much effect on these poisons. Anthrax contagium has to be exposed to boiling-point for two hours to kill the rods, or to steam at 221° F. to destroy the spores. Freezing does not destroy the virus. On the other hand, a temperature of 112° F. destroys the Variola poison, and freezing has the same effect. A humid state of the atmosphere favours the infectiousness of some viruses, notably those of Anthrax and Cattle Plague. Air rendered impure by the process of respiration and transpiration is, from the fact of its being the most general, the most important impurity which concerns us. Until the importance of human and veterinary hygiene is more generally understood and appreciated, so long will families be crowded in small and ill-ventilated rooms, and horses and cattle condemned to low and stuffy stables, which never receive the light or breath of heaven.

We have before seen the enormous amount of impurities conveyed into the air by horses and cattle in health, and have pointed out how that, owing to the fact that animals have to live, sleep, eat, drink, defæcate, and urinate, all, in one place, and under one roof, the organic emanations are particularly foul.

To make matters worse, we have a strong and popular prejudice against fresh air—a prejudice not perhaps so marked as in the days when every crevice, including the key-hole, was carefully stuffed; but still sufficiently strong to form a most formidable barrier to the progress of veterinary hygiene amongst the civil population. On entering stables of this description, a penetrating odour, unmistakably of organic matter, is met with; a hot, damp, muggy feeling which is insupportable, accompanied by pungent ammoniacal vapours, which irritate the conjunctiva, all contributing to form the "poisoned atmosphere of the stable," which Professor Coleman believed to be the cause of Glanders. It will be remembered that Coleman held the view that Glanders could be produced in a previously healthy horse by exposing him to an atmosphere rendered impure by effluvia from his urine, fæces, and perspiration.

It was these views which laid the foundation of veterinary hygiene, which freed our Army from zymotic diseases, which saved the country enormous sums of money, which increased the efficiency of our Forces; it was the adoption of these views which rendered the French cavalry effective, and reduced their mortality. But in spite of what we can show, as the result of a better knowledge of the laws of hygiene, yet, in the civil world, Glanders-farcy is very common, Influenza and Strangles very fatal, Pneumonia a scourge, blood diseases only too frequent.

It must be conceded that in the present state of our laws it is impossible to exercise the same supervision over private property as it is over public;

but if only the loss of life amongst animals in this country, due directly or indirectly to confinement in an impure atmosphere, were obtainable, the results would be sufficiently appalling to call for immediate legislation.

Men should not, either from ignorance or indifference, be allowed to shut their animals up in places not big enough for a human being to live in, or make them breathe impure air, either through their personal prejudice or carelessness. It is no argument that, because it is his own property, a man is at liberty to do what he likes with it! He is not! Why should a horse-owner be allowed to run the risk of producing disease, not only amongst his own horses, but amongst those of others he may come in contact with? A man is fined for leading a glandered horse along the public road, and if legislation can be provided for this, it could be provided to insist on the proper ventilation of stables and cow-houses, and owners made by law to provide their animals with that due ration of air which science dictates they require; these duties should be performed by a veterinary sanitary police. No person should be allowed to breed disease amongst his own animals, or risk the property of others and the lives of human beings, any more than he is allowed to have a smoky chimney which proves a nuisance to his neighbour.

The British nation is a singular composition of incompatibilities, and we cause the foreigner to become intensely puzzled in attempting to decipher our national character. Now we have a society which firmly believes it is doing good by preventing experiments on living animals, whilst its only effect is to practically strangle medical science; we have another which takes upon itself the noble work of preventing cruelty to animals. There is no member of our profession who has not a feeling of admiration for the humane motives which promoted the organisation of this society, and for the good work they do; but I believe we are pretty generally agreed that they have not always adopted the most judicious course in their anxiety to do good, and have occasionally carried their views too far. I think it must be conceded that it is more important that animals should have pure air and ample cubic space than that they should remain in possession of the last inch or two of their tails, and *I feel convinced that the Society would have a wide field for work if they turned their energies, influence, and money towards providing animals with pure air, pure dwellings, ample cubic space, proper drainage, and sufficient food, and not allow our poor dumb patients to be cruelly deprived, either from ignorance or carelessness, of the essentials of health and life.* The effects on animals kept in an impure atmosphere are—they never look well, they are hide bound, require more food for the amount of work expected from them, they work indifferently, owing to enervation, their legs swell, colds, coughs, Pneumonia, Ophthalmia, and Diabetes, and Glanders-farcy, common; if an epizooty occurs it is much more fatal amongst these than amongst other horses placed under better hygienic conditions. Animals living in stables badly ventilated would not last so long as they do, but for the fact that they spend many hours daily in the open air at their work, and it is this and nothing else that spares them.

Organic matter derived from the bodies of animals in overcrowded and ill-ventilated places may, as the result of its decomposition, produce diseases, and these particles will be carried about by the air. Grognier has described a stable-fever of animals in France, analogous to hospital and prison fever in man;* and in the Alfort School, as before stated, wounds quickly become putrid, and caused death, owing to the overcrowding and bad ventilation. Constitutional Ophthalmia and other diseases of the eye have been attributed to the same cause.

In 1792, during the siege of Mayence, Dysentery of a very aggravated

* "Sanitary Science and Police." G. Fleming, LL.D., F.R.C.V.S.

character broke out amongst the horses and cattle closely confined in the casemates.*

The effects of gaseous inorganic substances in the air possess a very important influence on animal and vegetable life.

An excess of CO_2 produces serious changes in the blood, reducing the circulation and causing great dyspnœa. In slow poisoning the animal becomes sleepy, lethargic, the heart's action fails, and anæsthesia is produced. The exact amount of carbonic acid which will destroy life is not quite known, so much depends on its source. Breathing an atmosphere containing an excess of oxygen and carbonic acid (produced artificially), the results are different; Reynal and Reiset found that under these conditions 17·23 per cent. of CO_2 might be present, and the animals suffer no injury. In these cases the excess of oxygen protected them.

Carbonic oxide induces a reduced arterial tension and paralysis of the heart. It is rapidly fatal to animals if it exists in a larger proportion than 1 per cent.

Ammoniacal gases are largely formed in stables as the result of the decomposition of urea. Where free ventilation is denied the ammonia remains very persistent, and is generally believed to have a destructive influence on the eyes.

Sulphuretted hydrogen results from the decomposition of animal and vegetable matter. The odour of this gas is so penetrating that one cubic inch of it will, according to A. Smith, scent some hundreds of cubic feet of air. Four volumes per 1,000 of this gas will kill a horse; it induces diarrhœa, purging, and extreme prostration. This gas blackens the paint of those buildings where it may exist in any appreciable quantity.

Sulphur dioxide is given off from copper-smelting works. The fumes have the remarkable effect of producing ossific deposits on the knees and hocks, falling off of the hair, and general emaciation of both horses and cattle; the affection is termed "copper smoke" disease. This so-called copper smoke consists of about 68 per cent. arsenious acid, 28 per cent. sulphuric acid, and small quantities of iron, copper, and nickel. Although the disease is produced by inhalation of this vapour, yet it may also be assisted by the quantity of these salts deposited on the ground, and taken into the stomach with the herbage.

The effects on vegetation of acid gases derived from manufactories, is to shrivel up and discolour the leaves and stems of trees and farm crops. Mr. Rothwell says that old grass meadows and pasture lands receive much damage in the winter from this cause, and further adds, that on fields much exposed to the vapours, handsful of dead grass can be pulled up in the spring, smelling strongly of the vapour.† Dr. Smith has not verified this last condition, but he notes the damage done to the flowering heads of wheat by the action of acid gases; the crops may be, to all appearance, full and ripe, when scarcely a trace of grain is found. In a report published by the French and Belgian Governments on the subject of the damage done to plants by acid gases, much interesting information is to be obtained. It is shown that the amount of damage done is in relation to the hygrometric, barometric, and thermometric conditions of the air and atmospheric currents. It is not sufficient that the acid vapours pass over the plants, but they must actually touch them; the effect of this is the production of a stain on the leaf, and ultimate perforation and destruction of it. A curious case is recorded of three vigorous vines growing against some stables, which showed a staining and shrivelling of some of their leaves; the damage was undoubtedly due to acid, but the cause was far from apparent. It was ultimately found that below the damaged leaves there was an opening from

* "Sanitary Science and Police." † "Air and Rain." Dr. A. Smith.

which the air of the stables escaped, and which from want of cleanliness contained a deal of ammoniacal vapour, and it was this and the sulphuretted hydrogen which had stained and destroyed the leaves.

Regarding organic emanations from drains, we have very little evidence to show their ill effects on animals. Still, there is one most interesting case recorded when this condition produced a serious outbreak of disease.

At Cabul, in 1880, twenty-eight cases of Diarrhœa occurred amongst the horses of the 9th Lancers, nine of which proved fatal. The disease was principally confined to two troops, which were then moved out of the lines. Mr. Woods, the veterinary surgeon of the regiment, who records the outbreak, states that, after removing the affected troops, he had the flooring of the sheds dug up, and he found running through them a ditch three or four feet deep, filled with manure and refuse, and covered by only nine inches of earth. The effluvia from this, and from two or three pits several feet in depth, which were also found, was very bad. The whole place was cleaned out, fresh earth put down, and the epizooty ceased.* There is a practice which prevails amongst regiments of native cavalry in India, of burying vessels under ground in the stalls for the reception of urine, and these vessels not being removed for years; another common practice is burying the manure in or near the lines. The emanation from these places is pestiferous. Mr. Woods tells us, in his account of the above epizooty, that the 3rd Bengal Cavalry, which were lying next to the 9th Lancers, had six cases of Diarrhœa, of which three were fatal. The ground on which this regiment were encamped had previously been occupied by the 5th Punjaub Cavalry. This ground had become thoroughly soiled, and in many places consisted of nothing else but excrement, to the depth of a few inches.

I am afraid my paper has proved, what everything does which contains figures, rather dry; but I may be excused in bringing the subject before the profession, not only on account of its importance, but because it contains the first record of a chemical analysis of stable air made by a member of its body.

I trust at some future period to bring forward other subjects connected with veterinary hygiene, a branch of our science which has been much neglected.

SIR FREDERICK FITZWYGRAM VETERINARY PRIZES.

Sir F. Fitzwygram, Bart., offers these prizes on the same conditions as last year. Particulars may be obtained from the Secretary R.C.V.S., Red Lion Square.

Reviews.

PATHOLOGICAL MYCOLOGY. By G. S. WOODHEAD, M.D., and A. W. HARE, M.B. (Edinburgh: Young J. Pentland. 1885.)

The study of Bacteriology, as the subject is sometimes termed, is one of great interest and of increasing importance, more especially to the pathologist, as the recent advances in pathological mycology have thrown a flood of light on morbid processes hitherto extremely obscure. Drs. Woodhead and Hare have, in the excellent work now before us, certainly done a great service to students and busy practitioners of medicine

* For a detailed account of this interesting outbreak, see VETERINARY JOURNAL, Vol. xv., No. 88.

—whether human or veterinary—in laying out before them, in clear and concise terms, the methods to be pursued in investigating the micro-organisms found in disease, as well as those present in the atmosphere and elsewhere, and especially as to their examination and artificial cultivation. The object of the work is, as stated in the preface, twofold; first, to supply to the worker in the field of Scientific Medicine, a handy guide, to which reference may be made for instruction and details which can otherwise be obtained only from scattered papers and treatises in various languages; second, to show how extremely simple are most of the methods of research, while they encourage the young pathologist to work in a domain which daily, as it yields new facts to the patient explorer, discloses greater potentialities.

The work consists of an introductory chapter on the general subject of micro-organisms, which is particularly interesting, especially in regard to their relations to the tissues, and their special and distinctive individual peculiarities. Another chapter is devoted to methods of examination, in which the chemical and staining reagents are specified, and the hardening of tissues, method of illumination, photography, and other matters are fully described; while other chapters treat of solid and fluid cultivation, media, and the most approved methods of cultivation; and a chapter is given to separation of micro-organisms from the tissues—dead or living. There are two appendices—one on particular organisms, and another on the literature of the subject, which is somewhat fully dealt with. The illustrations are sixty in number, and are about the best we have ever seen in a book of this kind, some of them being coloured in a very telling manner. To those who are about to commence the study of micro-organisms, or who are already engaged in it, this compact little book of 174 pages can be heartily recommended, as it will serve as an admirable guide even to those who have made considerable progress in the practical part of the subject.

MAD DOGS AND HYDROPHOBIA. By H. DALZIEL. (Dundee: J. P. Matthew and Co. 1886.)

In a booklet of eighty-two pages, price one shilling, Mr. Dalziel, who is favourably known as a popular writer on dogs and horses, has dealt with the subject of Rabies in a manner sufficiently brief and explicit to give the general public an idea of this always terrible and terrifying disorder. A brief history is followed by remarks on popular fallacies, mistaken evidences and tests of Rabies, prophylactics, supposed preservative and preventive measures and cures, the symptoms and really preservative measures, and the law on the subject. Mr. Dalziel has gone to the best writers on Rabies for his information, and supplemented what they have to say by his own experience. Though to the veterinary surgeon it contains nothing new, yet to dog-keepers and the public in general, who may desire to make themselves acquainted with the leading facts in connection with this veritable dog-plague, nothing could be handier, cheaper, and at the same time more reliable than this little book.

HORSE AND MAN: THEIR MUTUAL DEPENDENCE AND DUTIES. By the Rev. J. G. WOOD. (London: Longmans, Green and Co. 1885.)

The reverend author, who has established a reputation for himself as a writer on natural history, has been moved to produce a book on the horse, with the laudable object of obtaining for that animal more considerate treatment from those who have to do with its management. Of the seventeen chapters which make up the contents of the volume, eleven are dedicated to shoeing, two to the bearing-rein, one to blinkers, one to mane-hogging, "docking," and clipping, one to stable management, and the last to anecdotes. The writer, in the preface, insists that it is not a "horsey" book, because he is not a "horsey" man; and although we abhor the vulgar designation and many of the weaknesses or specific peculiarities of the so-called "horsey" individual, we sincerely wish Mr. Wood had possessed sufficient horse knowledge to have preserved him from the more glaring and extraordinary errors which are to be noted in the chapters on the anatomy and physiology of the horse's foot and on shoeing. He asserts that he simply states facts, offers evidence of these facts, adduces proofs of that evidence, and states how and where these proofs can be verified. But with all due deference to him he makes statements which are not facts, gives no evidence or proofs of them, and does not mention how or where the proofs are to be verified.

At page 48, in describing the hoof, he says that the "linea alba," or white line, which marks the junction of the sole and wall, is analogous to the "quick" of the human nail, and is exceedingly sensitive. "In the untouched hoof this line, which is as vulnerable as the heel of Achilles, is thoroughly protected by the thick and strong horny layers of the sole; but if that protection be removed, or even weakened, the pressure of the horse's weight against a stone, or similar object, will cause such intolerable agony that the animal will drop as if shot when he treads upon it." And elsewhere this white line is repeatedly spoken of as identical with the "quick" of the nail in man, and equally sensitive. But this is not so; as our readers know that the so-termed "white line" is the rather soft insensitive horn uniting sole and wall, and which is always exposed to wear, along with the sole and wall, without any inconvenience to the horse. And among other strange errors, may be mentioned those in connection with the expansion of the hoof, which amateurs are never tired of descanting upon, but which in reality does not exist as they imagine it. Speaking of the advantages of this expansive property, he alludes to one of them in the following passage:—"When an ordinary horse—say, in hunting—is traversing stiff and clayey ground, its progress is greatly hindered by the soil which adheres to the hoofs and by the depth to which the foot sinks in the ground. Sometimes, when the horse has taken a leap, the fore-hoofs sink so deeply that the animal cannot instantly extricate them. The forward impetus cannot be checked, and the result is that the leg is broken at the pastern, and the horse has to be killed. The rider may probably be killed too; but we are now dealing with the horse, and not with its

rider. But to an unshod horse, the result of a similar leap would be very different. As it comes to the ground the hoof expands, and consequently gives a wider bearing; so that the foot does not sink so far, and necessarily makes a larger hole. Then, as the hoof contracts as soon as the weight is taken off, it comes easily out of the hole; and so there is but little risk of snapping the pastern."

Persons who know anything of the functions of the horse's foot will stare with amazement at these statements, which are not founded on fact—such expansion does not exist.

The injury caused to the foot by bad shoeing redeems blunders such as those we have alluded to, though the lack of a practical knowledge of the subject is abundantly manifest. Shoeing, no matter how practised, is considered an unmitigated evil; but this is another mistake. When properly carried out, horses will continue to do far more work, and with greater ease and safety to themselves and their masters, when shod than if unshod. We know of scores, or even hundreds, of horses—many of them over twelve years of age, some verging on twenty, and a few over that period—which have been shod continuously since they were three years old, and there is nothing the matter with their hoofs. Shoeing for ninety-nine per cent. of horses in a moist climate with hard roads, is an indispensable necessity. This is a fact which experience has amply demonstrated. Good shoeing does not injure horses, while it makes them more useful to man. This is the sum and substance of the whole question. With the opinions expressed on the use of the blinkers and bearing-rein, docking, and some of the evils of stable management, we quite agree, and hope their condemnation by the author will assist in bringing about reforms.

The book contains a number of woodcuts to illustrate the descriptions. Mr. Wood appears to have considered the hoof only, in studying the expansion of the foot, as did Bracy Clark, and he has consequently fallen into the same kind of errors; this is evident from the illustrations he gives. The figure on page 46, intended to represent a section of the hoof through the coffin bone, must have been drawn from imagination; no such arrangement is seen on a real section.

One sensible paragraph we find in the introduction, which makes amends for much that cannot receive this designation: "Let the medical and surgical treatment of the horse be left to those who have been trained in an acknowledged Veterinary College, and who can produce the diploma which testifies to their scientific and practical capability. Nowhere do I presume to instruct the veterinary surgeon. On the contrary, I urge, throughout the work, that no one ought to be allowed to administer the mildest of drugs, or to perform the slightest of operations, unless he be legally qualified to do so."

OUR HORSES: OR THE BEST MUSCLES CONTROLLED BY THE BEST BRAINS. By A. SAUNDERS. (London: Sampson Low, Marston, Searle, and Rivington. 1886.)

Of the many popular books on horses and horse management, this by Mr. Saunders is certainly among the best of them. Whether the writer

treats of stabling, food, water, exercise, shoeing, or training, we fancy the great majority of horsemen will agree with him in nearly all he lays down for guidance in these matters, which he treats fully and freely. In some minor details, in other parts, there might be, perhaps, a divergence of opinion, as in the treatment of diseases, or purchasing a horse; but this is of little moment in judging of the value of the book as a whole, in which common-sense forms a prominent feature. Horse-owners should be much indebted to the author for the valuable information he gives them in an intelligible and intelligent form; and horses would be as grateful to him, if they could only know how kindly disposed he is towards them in his instructions for their careful management and education. The anecdotes related in illustration of some of the points dealt with are good and well told, and convey a moral.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 20TH, 1886.

J. Roalfe Cox, Esq., in the chair.

Members present.—Professors Axe and Robertson; Messrs. Carter, Cartwright, J. Roalfe Cox, Dray, Dr. Fleming, Messrs. Greaves, Harpley, Mulvey, Perrins, Simpson (of Windsor), Simpson (of Maidenhead), Whittle, and the Secretary.

The SECRETARY read the notice convening the meeting.

It was agreed that Professor Walley's notice of motion should stand over to the next quarterly meeting.

The minutes of the previous meeting were taken as read.

Letters had been received from Professors McCall and Walley, Messrs. Woods, Wragg, and Taylor regretting their inability to attend the meeting.

The SECRETARY said that the following presentations had been made to the Library of the College:—"A Treatise on Hæmorrhoids, etc.," by Dr. S. Gamgee; "A Journal of Medicine and Dosimetric Therapeutics," by Dr. Phipson; "A Calendar of the Royal College of Surgeons of England."

Mr. DRAY moved, and Mr. WHITTLE seconded, a vote of thanks to the gentlemen who had made presentations to the Library of the College; which was agreed to.

The SECRETARY stated that he had received a letter from Mr. Charles Hall, of Burton-on-Trent, applying for the usual diploma in virtue of his holding the Highland Society's Certificate; he had paid the requisite fee, and his certificate was certified by Professor Walley in the usual way; he presumed the Council would grant the diploma.

This was agreed to.

Dr. FLEMING proposed that Dr. Duncan, Professor of the Ontario Veterinary College, and M. Paul Cagny, perpetual Secretary of the Veterinary Society in Paris, be elected Honorary Associates of the Royal College of Veterinary Surgeons.

Mr. WHITTLE seconded the proposal, which was agreed to.

The SECRETARY said that two newspapers had been sent to him. One, the *Colchester Gazette*, contained a report of a case in which a member of the College had been sent to prison for drunkenness and theft, and the other was a paper containing a local law case with regard to slander at Nottingham.

He also called attention to two cases of prosecution by the College solicitor. The first case was that of Mr. H. E. Whisken, who had illegally used the letters M.R.C.V.S. after his name; he had been fined £5, and had undertaken not to repeat the offence. The second case was against Mr. Pettifer, but it had been dismissed under a certain section of 12 Victoria, Chap. 43, because there was no proof that it had been issued within six months, Mr. Pettifer undertaking not to repeat the offence.

The SECRETARY read letters from Honorary Associates thanking the Council for the honour of their election.

A letter was then read from Mr. Beddard, Secretary of the Midland Counties Veterinary Association, *re* Clause 9 of the Supplemental Charter.

The SECRETARY said that he had received a communication from Mr. Slattery stating that he had lost his diploma.

The Secretary was directed to write to Mr. Slattery, telling him that he must make an affidavit with regard to his having lost his diploma, in the absence of actual proof.

The SECRETARY said he had received a complaint from Messrs. William Litt, of Shrewsbury, against Mr. John Woodfin, who called himself a horse and cattle doctor and canine surgeon.

The Secretary was directed to send the usual notice to Mr. Woodfin, requesting him not to practise under those titles, and to inform the Council in course of time whether the request had been complied with.

The SECRETARY said that it had come to his knowledge that a Mr. Donald MacIntyre was using the letters M.R.C.V.S. contrary to the Veterinary Surgeons Act, 1881.

The Secretary was ordered to send a letter of caution to Mr. Donald MacIntyre.

Counsel's opinion with reference to Clause 9.

The SECRETARY then read a copy of the letter which had been sent to Mr. C. E. H. Chadwyck Healey asking his opinion with regard to Clause 9. The reply which had been received from counsel was as follows :—

"1. Who are eligible to serve on the Council for 1886 and afterwards? In my opinion no one will be eligible to be a member of the Council after 23rd August, 1886 (that is, after the period fixed by the Charter of 1876 has elapsed), unless he is a Fellow of the College or one of the members of Council at the date of the granting of the Charter of 1876. The question may arise as to the date to which the word 'present' in Clause 9 of the Charter of 1876 is referable. It may be said that 'present members of the Council' means 'members of the Council in the year 1876,' or 'members of the Council of the end of ten years from 1876.' The grammatical meaning, however, seems to me to be 'members of the Council in 1876,' and to apply to such members whether they have since ceased to be members of the Council or not.

"2. Whether Clause 9 of the Charter of 1876 can be rescinded except by another Charter or Act of Parliament? In my opinion Clause 9 of the Charter of 1876 cannot be rescinded except by another Charter or by Act of Parliament. It is no doubt true that a new Charter cannot be forced upon an already existing Corporation. On the other hand, if the new Charter be once accepted by the Corporation it becomes binding upon it, and cannot be rejected in whole or in part, see *City of London* v. *Vanneker*, Lord Raymond, page 149, and *Rex* v. *Amery*, Law Reports 575, page 589. In the present case it is clear that the Charter of 1876 has been fully accepted by the College, and I should not be at all surprised to find that the conditions of the Charter were in fact based upon an express petition of the College itself. Whether this be so or not, it seems to me to be impossible for the College to say that, while accepting the rest of the Charter and having acted upon it,

it will reject Clause 9.—C. E. H. CHADWYCK HEALEY, Lincoln's Inn, 21st October, 1885."

Mr. H. L. SIMPSON thought that a copy of counsel's opinion ought to be sent to the secretaries of the different associations throughout the kingdom, and to those gentlemen who might write and ask for it.

Mr. JAMES SIMPSON said that Mr. Greaves could furnish the Secretary with the names of the secretaries of the associations in the North, and he (Mr. Simpson) would do the same for the South.

Mr. GREAVES proposed, and Mr. WHITTLE seconded, "That a copy of counsel's opinion be presented to each member of the Council, and be sent to the president and secretary of each of the associations."

Mr. MULVEY asked whether the opinion given by counsel settled the question altogether, or whether it was to be remitted for further consideration to the committee which had been appointed? He should like to know if any further action should be taken towards rescinding that Clause in the way of obtaining a new Charter.

Professor ROBERTSON thought that the counsel's opinion simply settled the legality of the matter. The question was whether the committee appointed by the Council recommended that a fresh Charter should be obtained to abrogate the Clause. He did not think that the committee had given any opinion at all upon that point. He said he saw no use in sending the opinion to the associations. The question was still unsettled with regard to the opinion of the Royal College of Veterinary Surgeons.

Mr. MULVEY said that the matter had stood over for counsel's reply. He had understood that the committee was to meet again, and would then make further recommendations to the Council. He would move that the question be referred to the Committee appointed by the Council.

Mr. PERRINS seconded the proposal.

Mr. GREAVES withdrew his motion, and Mr. Mulvey's motion was agreed to.

It was resolved that a meeting of the committee should be called before the next quarterly meeting of the Council.

Report of the Finance Committee.

The SECRETARY read the report.

Mr. DRAY moved that the report be received and adopted, and cheques drawn for liabilities.

Mr. PERRINS seconded the motion, which was agreed to.

Report of the House and Building Committee.

The SECRETARY read the report of the progress of the building and the work done by the committee.

The PRESIDENT said that an adjourned meeting of the committee had been held that day, but there was nothing further to report upon.

Mr. DRAY said that there was every probability of the building being handed over to the Council by the latter end of March, in time for the quarterly meeting which would be held in April. They were all very much indebted to the President, who had given so much of his valuable time and paid so much attention to the furtherance of the new building and its furnishing, etc.

Mr. PERRINS asked whether the back entrance had been entirely done away with.

The PRESIDENT said it had been bricked up, but the surveyors had assured them that all their rights had been preserved.

Mr. PERRINS asked whether the fireplace in the board-room was a permanent one. It had struck him that it was a very small one, and rather out of proportion considering the size of the room.

Mr. H. SIMPSON said he had been very much struck with the warmth of the room and the dryness of the walls.

The PRESIDENT said they had been obliged to go economically to work with reference to the building, and they had rather hesitated to go to an extra expense of ten pounds or fifteen pounds for a larger fire-place. He was of opinion that the existing one would meet all requirements.

Professor AXE asked if the back door had been bricked up, what technically constituted the right of way?

Mr. WHITTLE said that a coal-shoot had been left there which gave a right of entrance.

Professor AXE moved that Mr. Thatcher, the solicitor to the College, be instructed to satisfy himself that their rights with regard to the back entrance had been preserved.

Mr. PERRINS seconded the motion, which was carried unanimously.

Mr. DRAY called attention to the fact that all the money which had been subscribed for the new building was exhausted and they had therefore been compelled to fall back upon the College funds. He hoped when they made another appeal that it would be liberally responded to.

Dr. FLEMING said that several gentlemen had promised donations amongst whom was Professor Simonds. He thought that the conditions under which that gentleman had promised his donation had been fulfilled.

Mr. PERRINS moved that the Report of the House and Building Committee be adopted.

Mr. MULVEY seconded the resolution, which was agreed to.

Report of the Court of Examiners.

The SECRETARY read the Report of the Examinations in England, Edinburgh, and Glasgow, and said the Examiners had no special remarks to make with regard to these.

Report of the Fellowship Examination Committee.

The next Fellowship Examination had been fixed to take place on the 24th February.

The SECRETARY read a list of members who had passed the last examination.

Mr. GREAVES asked how many gentlemen had sent in their names for the next examination?

The SECRETARY said a full number, and he was in communication with five or six others.

Dr. FLEMING said he had been astonished at the manner in which the senior members of the profession had passed their examination in the scientific portion of this examination

The PRESIDENT said that another significant fact with regard to the Fellowship Examination was that of a gentleman who had unfortunately been rejected, and who, having presented himself twelve months afterwards, thanked the examiners for having rejected him, as he passed an excellent examination, and became a very creditable Fellow of the College.

Obituary.

The SECRETARY read the obituary notices showing a long list of deaths.

Mr. GREAVES said it had come to his knowledge that Mr. Thompson, jun., of Aspatria, had recently died.

Dr. FLEMING also called the attention of the Council to the death of M. Henri Bouley. At the time of his death he was President of the Academy of Sciences, one of the highest positions to which a man of science could

attain. He thought that the Council would only be doing itself justice by sending a letter of condolence to the family.

Mr. H. L. SIMPSON seconded the proposal, which was agreed to.

Election of Auditors.

The PRESIDENT said it was necessary that two auditors should be elected.

Mr. DRAY said he had much pleasure in proposing that the present auditors, Mr. Broad and Mr. Woodger, be re-elected. These gentlemen, as honorary accountants, had done their work very efficiently for a number of years.

Mr. WHITTLE seconded the motion, which was carried.

Mr. PERRINS asked if any special time was fixed for sending out voting papers to Australia, as he had a friend there who was desirous of voting.

The SECRETARY said that the date was fixed by the charter and bye-laws.

Dr. FLEMING asked whether the Council intended to take any steps with regard to the case of Mr. Thomas Neave, who had been convicted of felony?

The SECRETARY read the report of the case, which appeared in the *Colchester Gazette.*

Mr. H. L. SIMPSON moved that the matter be referred to the Parliamentary Committee.

Dr. FLEMING seconded the motion, which was carried.

SPECIAL MEETING.

The PRESIDENT said that as Professor Walley was not present, his motions would have again to stand over.

Professor AXE said he had been induced to bring his motion before the Council on account of certain discrepancies which appeared, firstly, in the period of scholastic education required by colonial schools and by the English and Scotch schools; secondly, on account of the inefficiency, or rather the discrepancy, in connection with the curricula of the colonial, English, and Scotch schools; and thirdly, on account of the fact that in some of the colonial schools a preliminary examination was not required of intended students, and that in other instances the preliminary education was probably of a very inferior order. At the present time Bye-law 47 provided [Bye-law read]. His motion referred to the latter part of the Bye-law: "A student holding a foreign or colonial diploma from any veterinary examining body recognised by the Council shall be exempt from attendance on the course of lectures for the first two years, and from the examinations at the end of those years respectively." The Council would see that under that clause a student, upon presenting a diploma from any colonial college—whatever might be the system adopted in regard to entrance and the process of graduation—was in a position, after attending one of the English or Scotch colleges, to present himself for examination at the Royal College of Veterinary Surgeons, and receive his diploma. The Council would readily see with what facility such a person might gain an entrance to or become a member of the Royal College of Veterinary Surgeons, and the advantages he had over and above those who followed the usual curriculum of the English and Scotch schools. For example, he might, without mentioning names, point to a particular school whose conditions of entry did not provide for any preliminary examination. A person was admitted as a student, and he might, if he would, graduate in the course of about nine months. The provision of entry was as follows:—The session began in October, and continued until the end of March, a period extending a little over five months. Junior students could enter any time until January, so that any intending student, after having completed a sessional course of three months and a subsequent sessional course of six months, was eligible to present himself for examination at that particular school. He would become a graduate of that school, and was then in a position to come over to this country

and could submit himself for examination after spending six months at either one of the English or Scotch schools. He could thereby practically render himself a member of the Royal College of Veterinary Surgeons in something like fifteen months, whereas their own students were required to attend twenty-two months, to undergo a strict preliminary examination, and to devote themselves to a very extended curriculum. By previously passing through the curriculum of colonial and American schools, intending members of the Royal College of Veterinary Surgeons obtained their diploma in a much shorter period of time than those who went through the ordinary curriculum of the English and Scotch schools. He would therefore suggest that Bye-law 47 should be as follows :—"A student holding a foreign or colonial diploma from any veterinary examining body recognised by the Council, shall be exempt from attendance on the course of lectures for the first two years, and from the examinations at the end of those years respectively, provided he has regularly attended a veterinary school for not less than three winter sessions of six months each, and qualified in the subjects comprised in the first two examinations of the Royal College of Veterinary Surgeons." The last paragraph was intended to meet the discrepancy in the curricula of the American and Canadian schools, which, in some instances, had not a chair of botany, and in others, had not a chair of histology. He would also like to ask the opinion of the Council, in the event of the resolution being passed, as to whether it should be made retrospective or merely prospective. It might be considered unfair for men who had already graduated at American and Canadian schools to have impediments thrown in the way of their becoming members of the Royal College of Veterinary Surgeons. If the resolution he had brought forward were passed, he was of opinion that it would operate beneficially upon the schools referred to, and would induce them to extend their period of study, to enlarge their curriculum, and, above all, to establish a preliminary educational examination.

Mr. DRAY asked Dr. Fleming to give the Council the benefit of his views upon the question then before them.

Dr. FLEMING said he was rather averse to the motion of Professor Axe, and for this reason, that very few members of the profession from the American continent come before the Royal College for examination ; and he must confess that those seven or eight gentlemen who had presented themselves for examination since the present bye-law had been in operation, had passed a most creditable examination. These gentlemen had come to this country voluntarily to obtain the diploma of the Royal College of Veterinary Surgeons, after having already studied, passed the examination, and become members of the profession on the American continent. He felt sure that none but the very best men would travel to this country to obtain the diploma, and they would come with the full confidence of doing their utmost to get it. The suggested alteration in the bye-law would, he thought, throw a slur upon the colonial schools. The admission of colonial colleagues to be members of the Royal College was a thing rather to be fostered than stamped out. He did not think they ought to debar those gentlemen who were so proud of their profession, from coming to this country to obtain the diploma. He agreed with Professor Axe that every means should be taken to protect their diploma, so that it should be held by none other than worthy men ; at the same time, he felt confident that none but worthy men would come over to this country, because, as they all knew, the examination for the diploma was a very severe test. If a man passed the final examination well they might depend upon it that he was fit to practise his profession.

Mr. GREAVES thought it desirable that the bye-law should not be altered.

Professor AXE said he did not know that there were three better men in the College than those Americans who had recently passed. He might, how

ever, mention that he had brought forward his motion at the instigation of one of those gentlemen, who had informed him that it would be received in America by the bulk of practitioners there as a step in the right direction. There was, however, one aspect of the question which Dr. Fleming had not touched upon, and that was as to whether it was not an inducement for persons in this country to go over to America and take their degree there and then return, in order to escape the preliminary examination, and also the more advanced curricula. If it was the view of the Council that his motion was not a step in the right direction, he would not urge it, and would have great pleasure in withdrawing it.

The motion was accordingly withdrawn.

Mr. DRAY proposed, and Mr. WHITTLE seconded, a cordial vote of thanks to the chairman, and the proceedings ended.

CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING was held on the 3rd December, 1885, at the First Avenue Hotel, the President (Mr. F. W. Wragg) in the chair, and fifteen Fellows being present.

Mr. F. SMITH exhibited a hinged shoe which he had devised to treat contraction of the feet.

Mr. J. H. BROWN showed an extraordinary number of calculi, which were taken from the intestines of a pony ; knowing the history of the animal for eight years, he was aware that it had been in good condition, regularly worked, and not subject to Colic to any exceptional degree.

Mr. F. SMITH then read an essay on "Air and its relation to Health and Disease" (since published in the VETERINARY JOURNAL).

Mr. HANCOCK then alluded to the indebtedness of the Society to Mr. Smith for so interesting a paper, and said he thought all would agree that the necessity of pure air to maintain health could not be too strongly insisted on, and that it was very important to fully consider the means and extent of its vitiation ; yet the discussion of an essay so exhaustive, and so based on statistics and figures, could only be properly attempted after an opportunity had been afforded of reading it in print.

Mr. GIBBINGS said it appeared to be the opinion of the essayist that the foulness of the air in stables was the principal cause in the production of chest diseases ; he said he would not like to admit that, for he had observed cases which pointed to an opposite conclusion. He had at one place the attendance of a number of horses, about sixty. Recently, new stables had been erected, and were placed on the first floor of a building ; openings were left between each stable to give free ventilation, and coughs and colds had been of very frequent occurrence. He then adopted the plan of covering the ventilating shafts with tarpaulins, under the impression that the temperature of the building was too low ; the immediate consequence was that the stables became much warmer, and a catarrhal or bronchial affection was now a comparative rarity.

Professor AXE : The subject of this paper is one of paramount importance in the great question of veterinary hygiene. To us who have to deal with the lower animals, whose habits and instincts are uncontrolled by those higher attributes and considerations of sanitation which determine the well-being of man, it is peculiarly interesting and attractive, and we are much indebted to the essayist for having brought before us so many instructive facts and figures bearing on the composition and contamination of air in the habitations and surroundings of our domestic creatures. The subject of air in its relation to health and disease has hitherto received but little attention from members of our profession in this country, and it is to be hoped that the new

departure which Mr. Smith has initiated will be carried on in the same spirit of thoroughness in which it appears to have been conceived. That stables, cowsheds, kennels, and the dwellings of our lower animals generally are, and must, by the very nature and habits of the creatures which occupy them, be considerably vitiated by the products of decomposition and decay, is distinctly obvious; yet it cannot be overlooked that the mortality and loss from preventable atmospheric pollution in this metropolis and other large towns is a serious reflection on the sagacity and intelligence both of the owners and managers of stock, as well as members of our profession. It is perfectly true that much of the disease and suffering occasioned by insanitary air is the outcome of that unfortunate crowding and want of space in our animal habitations which is incidental to all large centres of commerce; but it must, at the same time, be admitted that negligence and ignorance of the laws of life and health, and especially of the ways and means and importance of effecting a frequent and complete change in the atmosphere of our stables, are responsible in a very large measure for the losses we annually suffer in our domesticated stock. It is to be regretted that a subject of so much real importance to us should be summarily dismissed from our attention. The paper is one requiring much thought, and it is under circumstances of this kind that one feels in need of a longer acquaintance with the matter than can be obtained through a mere reading. I hope the time is not far distant when copies of papers on special and important subjects like the one under consideration may be in the hands of members at least one week before the date of meeting. This would be a distinct advantage, which the institution of a Journal of the Veterinary Medical Societies would, no doubt, tend to consummate.

Mr. SHEATHER expressed his pleasure at hearing the essay, and said it would be realised by but few how many hours of study and work the preparation of such a paper would entail. He said it was pointed out by the essayist what a great decrease occurred in the annual mortality from Glanders in the French cavalry horses between 1847 and 1866, and the improvement was attributed to good ventilation; but he thought several other factors may have helped to produce this good result, such as a better acquaintance with the nature of Glanders, and the hygienic measures such knowledge would suggest. Regarding one of the essayist's tables, he said it appeared that in the same stable the amount of carbonic acid was sometimes twice as great as it was at others, and, therefore, it seemed that contamination was not always constant; and he thought that such a difference, which presented itself on two separate occasions of analysis, might occur twenty times in a day. These figures are interesting, he said; but as their constancy cannot be relied on their scientific value was decreased. We could judge of the amount of pollution of the atmosphere, to a large extent, by our senses, and we should rather direct our energy to discovering and remedying the cause of contamination.

Mr. MOORE then proposed, and Professor AXE seconded, that further discussion should be postponed till the next night of meeting. This was agreed to.

Mr. SMITH, replying to the remarks made, said: In speaking of the decrease of mortality among the French cavalry horses, I endeavoured to show that improved ventilation, increased cubic capacity, feeding and general care, all had their part in effecting the reduction of mortality. It is true that there is a variation in the amount of carbonic acid found in the same stable at different times, but the difference is not sufficiently great to prove that carbonic acid is not an important factor. The senses can detect the presence of carbonic acid up to a certain point—I think it is 1·2; anything above this represents increased impurity in the air. I quite agree with Professor Axe that we cannot always carry out the improvements which sanitary science suggests, and that manure heaps must often be placed much closer to the stable than thirteen yards; but that is no reason why we should not determine

the distance which ought to separate them. It is true that the carbonic acid does itself do much harm, but it is used as an index of the amount of organic matter which is present; it is this organic impurity which does the mischief. I am afraid that a mistake has also been made by some gentlemen present as to the extent to which I consider that Pneumonia and Pleurisy are due to impure air ; there is no doubt that these complaints are often caused by exposure to cold and wet, but I wished to draw attention to the opinion, which is gaining ground, that impurity of the air greatly tends to produce Pneumonia and other thoracic diseases. In the instance spoken of by Mr. Gibbings, the dampness of the new buildings may have had some effect in causing illness at first. It is a fact that a stable may be warm, and yet pure in atmosphere; also, it may be atmospherically healthy, and at the same time very draughty. ALFRED BROAD, *Hon. Sec.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this society was held in the Veterinary College, Glasgow, on January 27th. There was a good attendance of members and friends. After some preliminary business had been disposed of, Mr. ANDERSON, jun., the President for the year, delivered the following address :—

Gentlemen,—In accepting the office of President of this Association for the ensuing year, to which honourable position you have now elected me, allow me to cordially thank you. I hope I shall be able to conduct the onerous duties necessarily incumbent on such a position in a manner that shall enable me next year to vacate the chair with the reflection that "the burden which was well borne became light." This wish, however, is only attainable by your assistance and indulgence ; and while craving both from you, I also crave your regular attendance at our quarterly meetings, even if it should be at the expense of a little personal inconvenience ; then, and then only, will progression and usefulness be established—the two great aims of our Association. I may lack the ability and genius of a number of my illustrious predecessors, but rest assured I have the welfare of the Association at heart, and no personal interest shall prevent me from using my utmost endeavours to promote its welfare, either in the conducting of its affairs, or in contributing my humble mite of professional research. I look back on the history of this Association with pride, especially when I consider that, out of London, it was the first Veterinary Medical Association formed in the three kingdoms ; and also when I think that my father was one of its original promoters, and was the first member who filled the office of president.

It is now twenty-eight years since its formation, and it may not be uninteresting to you to hear read a letter then written by Mr. Charles Moir, the first secretary of the Association, to the editors of the *Veterinarian*, intimating the formation, and also requesting them to insert in their journal the proceedings of the first meeting. The letter reads thus :—

"Glasgow, *July 17th*, 1858.

"Gentlemen.—Believing that at all times it is gratifying to you to find that the members of our profession are taking that position which they are justly entitled to, and which perhaps is partly to be accomplished by a mutual determination to advance themselves in a knowledge of their art, I have much pleasure in informing you that a step has just been taken in the right direction by a number of gentlemen in Glasgow. Seeing the advantage which would accrue from the formation of a society having for its object mutual improvement by the discussion of cases, a meeting took place on the 14th ultimo, which, very much to the gratification of those who took upon them-

selves the preliminary arrangements, was attended by a goodly number of the profession, one and all of whom cordially concurred in the object in view, and as such resolved at once to form themselves into a society. A committee was thereupon appointed to prepare the rules and regulations, and to take the necessary steps towards the completion of the society. Professor McCall, of the Edinburgh Veterinary College, kindly consented to address the next meeting, which was arranged to take place on the 18th of the forthcoming month. I have no doubt, from the enthusiasm exhibited, that the society will not only do a vast amount of even individual good to those who take part in its proceedings, but that it will also tend to create that *esprit de corps* amongst us, the want of which has been hitherto sadly felt by all who have the advancement of their profession at heart; and I trust that both you and others will yet hear much of the good effects of the present movement. I send you a copy of the minutes of the meeting, by which you will see that I was instructed to forward a report for your journal, which I hope you will do me the favour to insert, notwithstanding it is late in the month. It affords me also much pleasure to state that it is the wish of this society to be on the most friendly terms with the Veterinary Medical Association existing in your part of the country, and that it will gladly receive any suggestion which you may think important, and also that it wishes to act for the good of the profession, and to do away with any petty jealousy which may exist between the members of the different colleges.—I remain, yours, etc.,

"CHARLES MOIR."

Now, gentlemen, when we consider that it is twenty-eight years since that letter was written, and yet how every sentence in it reminds us of our present wants—namely, mutual improvement, *esprit de corps*, etc.—a few questions reflect themselves before us. For instance: Has the object of the Association been attained? Have its members contributed sufficient scientific matter for its advancement with the age? and has its existence been the means of creating social harmony amongst its members? In answering these questions collectively, I can certainly say Yes. Firstly, I consider the object of the Association has been well attained, not only for the good it has done its individual members, but also for the good it has done the profession in general, by taking the place of precedent example to all other provincial veterinary associations, whose good fruits are now enjoyed throughout the length and breadth of our country. Secondly, I am sure its members have contributed scientific matter sufficiently to entitle it to rank on an equality with any other existing scientific body, as the leaves of the *Veterinarian* and VETERINARY JOURNAL can testify. Certainly, we cannot all be credited with an equal share of scientific contributions, but the silent member, who regularly attends and gives his practical opinion on any important question when occasion requires it, is equally entitled to share with the propounders of theories and experiments those honours which are due to members of this and similar societies who diligently and energetically attend to the demands which membership necessarily commands. Thirdly, its usefulness in promoting harmony and goodwill amongst its members is, I think, undeniable. Of course, there are unsociable men in the veterinary profession, as well as in all other classes, but these men seldom become members of a society of this kind, they either being too egotistical or too selfish to diffuse what little they really know.

We are at present, gentlemen, passing through an interesting and remarkable epoch in the history of medical and veterinary teaching. Day after day we hear of some new micro-organism being discovered, which we are called upon to believe is the cause of some particular disease, and also that every zymotic disease has its particular microbe peculiar to itself, and that these organisms not only have the power of generating themselves in the living

subject, but can also be cultivated outside the living body, and their virulent effects upon the system become so modified as to make them almost innoxious. In fact, medicine is threatened with an invasion by the microscope, which, if we are to believe all that has been written on the subject, will simplify matters to such an extent, both in the detection and management of some of the most virulent diseases we meet, that we are inclined to believe that by-and-by the demand for our services will be reduced to a minimum. Great praise is certainly due to M. Pasteur and others for their indefatigable efforts in discovering and promulgating this theory of disease, and we, as every-day practitioners, must to a great extent imbibe their teachings as facts, seeing we have neither the time nor opportunities for investigating their correctness. But although it may be ungenerous on our part to confute their allegations, after the years they have spent in laborious research, we can ask ourselves the question, Are we justified in accepting everything they allege regarding Zymosis as truth? or, is not this germ theory of disease being carried too far? My own opinion is that, until we find more conclusive results than have as yet been shown us, we should suspend our opinion by taking the case to *avizandum.* Is it not stretching a point for a man to allege that an outbreak of Anthrax, which carried off a few animals of a herd, was due to the water they drank, which, upon examination microscopically, was found to contain no impurities, but on making cultivations in various fluids and inoculating with the water, the bacillus was developed as beautifully as it was found in the spleens of these affected animals. Imagination and mistaken identity of these so-called organisms go far to explain these allegations. I do not wish, gentlemen, to introduce matter into my inaugural address which may tend to provoke discussion, but I cannot allow this opportunity to escape without bringing before your notice another question in connection with this now-famous germ theory of disease. Besides, seeing we have not a great amount of other business to do this afternoon, a little time may not be ill-spent were we to occupy it in revealing and exchanging our opinions on such an important subject; especially, seeing this subject is to be brought forward at the National Veterinary Association's next meeting, which is to be held in Edinburgh in July. The question is, "Are these so-called living organisms actually reproducers of their own species, or are they merely the results of a certain contagium?" The question is one of such vastness, and of such importance to us as veterinarians, and the writings of eminent men on the subject are so voluminous, that it would be presumption on my part were I to offer a solution of it, or to distinctly differ from the popular opinion held by the greatest scientists of the day, which is that they are reproductive living organisms. Now, my experience in certain zymotic diseases forces me to doubt the accuracy of these alleged pathological truths, and I am of opinion that there is far too much of the "take-for-granted" theory existing amongst us at present. For instance, Pasteur, by experiment, discovers a microbe or promulgates a theory; Dr. Burdon Sanderson tries the same experiment, and fancies he gets the same results; some illumined member of our profession endorses their opinions, because he has translated the same results from some other foreign authority's work; then the members of the profession accept it as they do the Gospel, afraid to contradict it. I do not say, for one moment, that believing in the germ theory of disease, and practising it accordingly, interferes with our usefulness as practitioners—in fact, I believe it assists us greatly in carrying out the provisions of the Contagious Diseases (Animals) Act with greater confidence and more certain results; but still it makes us take too collective a view of zymotic diseases. For instance, I believe that Glanders and Farcy can arise spontaneously in the horse, and Hydrophobia in the dog, each merely requiring suitable environments for their development. Other zymotic diseases may arise differently; but in these two

diseases I have proven to my entire satisfaction, in different outbreaks, that spontaneity was certainly the origin. Is it not possible—aye, even probable—that these microbes or micrococci we see in morbid tissues are the production of disease, and not, as is at present thought, the producers of disease? If we look at Sheep-pox itself, the facts at present known are surely irreconcilable with the notion that the organisms found in the diseased tissues are themselves the cause of the disease. After the first local contact of the contagium with some surface, it is subsequently supposed to multiply and be disseminated through the body by means of the blood. But, on the other hand, it is a well-attested fact that inoculation with the blood of an animal suffering from Ovine Smallpox does not produce the disease in another animal. How can those who believe in the germ theory for Variola Ovina account for this absence of germs from the blood? It is true that in a morbid specimen we microscopically find certain movable homogeneous bodies, morphologically the same, varying in numbers with the stage of the disease or the severity of the attack; but should this alone convince us that, because these organic molecules are growing in numbers under the same environments, their source must be from reproduction? I say No; because we find the same, or at least a similar, change taking place when we chemically unite two or more substances. We have molecular disturbance, chemical affinity, then the formation of distinct atomic crystals, identical in appearance and character, but no more; they are inanimate particles, and therefore non-prolific. A more direct example is shown by the chemical action which takes place by the formation of bacteria when we mix a fermenting mass with a fermentable mass; the bacteria contained in the fermenting mass incite the fermentable mass to produce bacteria from its substance, but in themselves the bacteria are not reproductive. It was a theory analogous to the process of fermentation which was held about contagion, until recently, since the days of Hippocrates, and I must say I fail to see any conclusive arguments adduced by the advocates of the new theory warranting us to change our opinions. Certainly, we can produce these organisms outside the living structure; but that is no criterion for believing that they are living organisms, seeing that they can only be reproduced or cultivated in organic matter.

It will, perhaps, be *apropos* for me to express my opinion regarding a subject which has occupied the attention of the members of our profession for a considerable time, and which has caused many animated discussions all over the country—namely, the Supplementary Charter of 1876, particularly that portion of it which is now known as the Obnoxious Clause. You will, no doubt, all be aware that on the 23rd of August next this clause comes into operation; we will then be deprived of certain privileges which we at present enjoy—namely, being eligible for election as Members of Council or Members of the Board of Examiners. We certainly will feel keenly the humiliating effects of the clause, when we consider that a Fellow of the College can turn round and address a member thus:—"I sympathize with you very much, but the laws of our country say I may associate with you in kirk or market, as hitherto, but we must not enjoy each other's company in the Council Chamber nor at the examination-table, because you have not proved yourself to be worthy of associating with those who compose these Boards. So far as I know, you are ignorant—at least, not sufficiently educated to conduct the affairs of our noble profession. You don't know enough regarding dietetics, hygienic principles, and the like; in fact, you have not kept pace with the times, and therefore you are unfit to know who are and who are not fit to practise the art and science of veterinary medicine and surgery."

This may sound to be ironical language, but, nevertheless, it is the true gist of the clause. Now the question comes to be, Who are to blame for this state of affairs? Certainly the promoters of the Charter are essentially to

blame for their arrogance in ever dreaming to frame such a clause ; but it is unfair to place the whole of the onus on their shoulders, for I consider that each individual member of the profession is entitled to bear a certain share of the disgrace for allowing such an overbearing clause to become law. If we cannot get the clause rescinded altogether, we surely can modify it greatly by applying it to members who may graduate after the date of its coming into force, or, at all events, exempt those members who entered the profession before the Charter was obtained, from the oppression of the clause. These, however, are legal points, upon which I understand opinion of counsel is at present being taken, and should that opinion be against our hopes, I would certainly be opposed to the proposal which has been already made, namely, for us to go to Parliament for redress—at least, for some considerable time to come. Let us bear the oppression peacefully, and let he who aspires for the higher degree befit himself for the necessary examination, humbling as it must be to approach brother-practitioners and ask concession from them to again enjoy the privileges which they were the means of depriving him, and which concession they have in their power the right to refuse without explanation, and from which tribunal there is no appeal unless it be going through the same ordeal again. Gentlemen, is it in accordance with the age that this should be so? Why don't they adopt the medical profession's plan, and give the higher degree to those members who write an original thesis on any subject connected with the profession? Then the whole profession would not only be benefited, but it would also place the Examiners in a position above suspicion of exercising any personal animus or spleen they may have against the candidates.

I should have wished to see the degree of Fellowship placed on a more dignified platform, in not having emoluments thrust upon its Fellows.

I think, gentlemen, the present mode of electing Members of Council is a very honest and fair one, and is satisfactorily carried through ; but I am sorry that so many of my professional brethren should lack that sense of duty which they owe the profession by not taking advantage of the privilege they possess of voting by proxy. I also admire the plan of two or more societies like this combining together in order to return their chosen candidates ; and I consider it is the duty of every member of each society to be true to these candidates by giving them their votes and no others. Mr. Cunningham's (of Slateford) suggestion for returning members to Council is well worthy of serious consideration—namely, that the country be divided into constituencies, and each returning a member or members. I think it would have the effect of making those members vote who are at present sunk in oblivion.

The present system of examining students I am adverse to, and certainly if those gentlemen who constitute the present Board of Examiners have not made its name famous, they have certainly made it notorious, by the great number of students they have rejected. Such large numbers of rejections, which have taken place at almost every examination since the present Board was constituted, are unprecedented, and for what reason? Is the teaching given at our colleges deteriorating? Or are the students of to-day less intelligent than the students of ten years ago? Or are the present Examiners men of supernatural wisdom, and who are determined to reject every man who comes before them unless he be a philosopher? Or is it through a desire on their part to raise the status of the profession to such a height that only men of extraordinary abilities can enter it? I shall be moderate, and accept the last plea. The question is then raised, Does this tend to the welfare of the profession? and is it possible to put old, experienced heads on young shoulders? I have been told a number of questions which were put to students lately, and have considered them, and I am confident, had the same questions

been put to each individual Examiner, their answers would have been widely different. Now, how can a student be expected to answer questions which have not yet been satisfactorily and conclusively settled? One of these questions recently put was, Whether is a horse's foot larger while on the ground than off it? The answer the student gave was that he thought the foot was larger while on the ground; the Examiner, however, thought the reverse, and told the student he surely did not read much. Such questions, I contend, should not be put, as they are open to discussion; and seeing the Examiner and student are placed on such very unequal footings, I consider it is unfair to the student that the Examiner should take undue advantage of his position. I think that at least two Examiners should always be together when a student is being examined, so that all prejudiced opinions and pet theories might be counteracted. I should also advocate for a written examination to be introduced. I also think that a rejected student should not be required to pay three guineas for re-examination, as I know for a fact that it is a widespread opinion that the Examiners make a practice of rejecting students for pecuniary gain.

Gentlemen, I shall not detain you longer with any more remarks upon the topics the profession is at present interested in. I assure you it is an arduous duty to write an inaugural address, as you are sure to give offence to some one or other, more especially if you write it as you think, without fear or favour, as I have tried to do.

The adjourned discussion of Mr. CAMPBELL'S paper on "Warranty and Soundness of Horses" was then resumed.

Professor MCCALL, Messrs. POTTIE, ANDERSON, WEIR, and GARDINER were the chief speakers.

As the discussion proceeded, it became evident that no good could result from such a debate, and the matter was allowed to drop.

The usual vote of thanks brought the meeting to a close.

L. MACQUEEN, *Secretary.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting was held at the Blackfriars Hotel, Manchester, on December 9th, 1885. Present:—S. Locke, Esq., President, and twenty members.

On the motion of Mr. W. A. TAYLOR, seconded by Mr. GREAVES, it was unanimously carried that Mr. Thomas Briggs, of Bury, be the President.

It was resolved that Mr. J. W. Ingram, of Manchester, be the Secretary, and that Mr. W. Woods, junr., of Wigan, be Treasurer. It was also resolved that Messrs. Hugh Ferguson (Warrington) and A. M. Michaelis (of Stockport), be Vice-Presidents, along with Mr. S. Locke, *ex-officio.*

The newly-elected officers briefly thanked the members for their elections. A vote of thanks was then accorded the worthy retiring President (Mr. S. Locke) and the other retiring officers, to which suitable responses were made.

Mr. WILLIAM DACRE then read a paper on the "Periplantaire Method of Shoeing." A very general and practical discussion followed, in which the advantages and disadvantages of this system were fully dilated upon.

Mr. WOLSTENHOLME proposed that the best thanks of this Society be given to Mr. Dacre for his valuable paper; this was seconded by Mr. JOHN LAWSON, and carried unanimously.

The annual meeting and dinner of the above Association was held at the Grosvenor Hotel, Manchester, on February 11th, Thomas Briggs, Esq., President, in the chair. There were present:—J. Roalfe Cox, Esq., President, R.C.V.S.; Professor Williams, Professor Robertson, Professor Walley, and Professor Pritchard, with a large number of members and visitors.

It was decided not to nominate a candidate for the Council of the Royal College of Veterinary Surgeons.

On the motion of the PRESIDENT, seconded by Mr. PETER TAYLOR, an Election Committee, consisting of the office-bearers of the Society, with power to add to their number, be formed, was carried.

The PRESIDENT then delivered his inaugural address as follows :—

Gentlemen,—It is my pleasing duty to thank my friends the members of the Lancashire Veterinary Medical Association for having honoured me with their confidence and esteem. By their vote, I to-day occupy the proud and privileged position of President of this fairly flourishing Society.

It is an equally pleasing duty to thank those friends whom we are apt to call "our visitors," for their kindness in coming here this afternoon.

On behalf of this Society I give them a hearty welcome, and a cordial invitation to come again and often.

There are many around me who have "passed the Chair," and who have fully realised the doubts and disquietudes which enter into one's mind when endeavouring to hit upon happy and proper themes for comment in an address such as this.

Scientific subjects are more or less deemed out of character, and if I content myself with short and somewhat summary remarks upon professional passing events, I trust it will not be thought that I am not fully aware that you expect—and have a right to—some special effort from me.

The Association whose annual meeting we are now celebrating is of comparatively long standing ; and it may safely be said to hold its own in veterinary politics and polemics. Its members may modestly claim that it has largely educated and stimulated not only its own members, but also the reading portion of the profession, in most matters appertaining to the guidance and government of the Council and the colleges.

On its roll-call you will find the names of good men and true, and of men who have given largely and liberally of their time and substance for the well-being of the profession generally.

It would be invidious of me to single out names, especially of those who are now with us. It would be a long labour to enumerate those who have in times past greatly contributed to the prosperity of this Society, and who have now joined the vast majority. Alas ! the old man with his scythe has been busy amongst us of late ; we have had heavy losses. Two Manchester gentlemen, Mr. Thomas Taylor and Mr. Moody J. Roberts, and two Liverpool gentlemen, Mr. William Leather and Mr. Alexander Bain, are no longer seen at our gatherings. We lament their removal all the more sincerely and deeply, when we regretfully remember that not one of them had come within measurable distance of the three-score years and ten which Holy Writ tells us is the allotted span of life.

Since the formation of the National Veterinary Association it has held a foremost place on these occasions, and although I know of nothing new about its career and doings, I cannot pass it by without wishing it well, and without urging those who have not yet joined it to do so at once. The Society is firmly on its feet. It does a vast amount of good work in bringing large bodies of us together in close personal friendship and in honest rivalry, and in disseminating throughout the British Empire a great deal of valuable practical and scientific information.

There is another "National" Veterinary Association—the National Veterinary Benevolent and Mutual Defence Society—which is not so "National" as our South-country friends might make it. This Society has virtually its habitat in Manchester. It was, I believe, born in this city, and has been mostly conducted by gentlemen residing in the vicinity of its birthplace. It is, however, materially sustained by subscribers living in almost all parts of the

kingdom. A few months ago a movement was made by a London gentleman —not a member of the profession—to start a new defence society, but with what success I am unaware. Then, too, a little longer time back, one of our associations contemplated the establishing of a similar society.

Recently, I have had the distinction of being elected to a seat at the council table of what, for convenience, I may call the Manchester Defence Society, and I venture to surmise that I shall not be far wrong in saying to these would-be rival bodies that there is not in the profession room for the three. Let these gentlemen who are, I am sure in all good faith, anxious to have a better society, closely examine the history and constitution of the one which now exists. Let them carefully inquire into its working, and then let them criticise it and suggest some means to extend its usefulness and to bring it into more general favour, and they shall have my hearty help, and I believe they will have the cordial co-operation of the existing management.

The Defence Society was established for the benefit of the bulk of the profession, and is ready to do justice and to extend mercy and genuine substantial assistance to all—for please recollect it is only called into action when someone is in trouble.

There can be no doubt, I hope, that the Council carefully considers and thoroughly investigates each case upon its individual merits, and does its best to arrive at a practical and sensible verdict. Had it not been for the letters in our two journals for this month, I should have had less to say on this subject. The writer of these letters is one of the most indefatigable and ardent supporters of the Defence Society, and has unquestionably its honour and welfare at heart. But his "settling" policy as therein stated is very "unsettling" to my mind. The spirit of compromise with which he appears to be saturated is all very well in its way, but I think it ought to have a much more definable diffusibility. Surely the Society was never intended as a simple go-between—a mere bargainer for easier terms. More probably it was established to "fight" factious and far-fetched cases, set agoing by some litigious malcontent. Although we have the men, and the money too, we don't want to "fight" if we can arrive at a perfectly honourable and straightforward settlement. We must, nevertheless, have a care. By means of the public press, authenticated reports—that this Society is decidedly desirous of "settling" any and every case in which there is the least element of uncertainty—will soon be placed before the eyes of our clients, and with the result that cases which are not considered good enough for a court of law will be "tried" by threatening letters. Compromises are more or less costly, and it strikes me that a good "fight," even if the expenses are heavy and apparently out of proportion, is not out of place where it is believed there is no real blame or liability to the law of the land. A fought case finding its way into print, whichever side wins, of necessity exposes weak places, and a lesson is learnt. Still we, no more than ordinary business-men, should shirk our responsibility and seek shelter in a "settling" society rather than contest an unjust claim.

The questions under discussion in Red Lion Square are not numerous at present. The two most important, which almost constantly crop up, are those relating to the education and the examination of the students.

At times we hear loud and strong complaints about this unfairness and that injustice being inflicted upon a school or its students by some stupid bye-law.

One grand object—that of placing the four schools upon a perfectly equable and sound footing—is, I believe, strenuously striven after, and the friction which does occasionally occur generally leaves a smoother surface.

Another grand object steadily staring the Schools, the Council, and the Examiners in the face is that of turning out a man, at the end of his curricu-

lum, fully "qualified to practise the art and science of Veterinary Surgery and Medicine." This is a truly puzzling problem, and is not capable of easy solution.

Immense strides have been made towards this end, and I am certain the teachers are ready and willing to do all that lies in their power.

The so-called "Selfish" (9th) Clause of the 1876 Charter has occupied considerable attention. Having often spoken so strongly, silence on my part now might easily be mistaken. I am in favour of the clause being cancelled, not that I think it in any way injurious or deterrent, but that it would be a pity and a mistake that such a small, insignificant question should cause a split or arouse jealousy in a body corporate, which is otherwise warmly united. At the same time I vigorously protest against the arguments of the agitators. The clause was not thrust clandestinely into the Charter of 1876. It was brought before many meetings of associations, discussed in Council, and approved at an annual meeting. It would appear that we unfortunate Fellows have done something very wrong. How, I am at a loss to know.

In quitting the critical for the constructive attitude, I pass on to speak of a subject which will, I hope, largely benefit and tend to combine our societies, and which will, I trust, equally interest their respective officials. A few weeks ago, I wrote to the editors of the *Veterinarian*, suggesting that they should publish gratuitously, in their monthly issue regularly, a tabulated list of the forthcoming meetings of the different societies, giving names, dates, and places, in a similar manner to that adopted by newspapers and periodicals in the announcement of hunting fixtures, exhibitions, shows, etc., etc. It had often occurred to me that if we knew when and where a certain meeting would be held, one could combine business with pleasure, and have a favourable opportunity of coming into closer contact with professional brethren, and of becoming personally known to men who might, under other circumstances, remain strangers. Speaking for our own Society, we are always only too glad to see fresh faces amongst us, and I feel certain the same feeling exists elsewhere. In reply to my letter, the venerable editor of the *Veterinarian* writes from his marine retreat to say that if the respective secretaries will send the notices, they shall be inserted.

An appeal to the editor of the VETERINARY JOURNAL, who is one of our honorary members, and whom we should, I believe, have had with us to-day had he been well enough, and whose absence we much regret, expresses his willingness to fall in with my views, and to insert, without charge, in his Journal similar announcements.

A highly distinguished member of our profession contemplates the publication of a new "veterinary periodical," and, so far as I can gather, he intends it in a large measure to report and record the transactions of our societies, to contain diagrams and descriptions of all in the allied arts and sciences that will interest and instruct us, and to circulate the latest information immediately respecting our own profession. What form this new serial is to assume, I am not able to say, but I understand the subject is shortly to be submitted to the associations in detail.

Gentlemen, I had hoped to have found time and space for a few comments on the present aspect of some of the contagious diseases of our domesticated animals, and upon a few other topics which were in my mind; but I feel compelled to stop short. Allow me, before sitting down, to express to you all how pleased I am to have your support to-day, and to tell you of my full appreciation of your kindness and attention. What I have had to say is desultory and disjointed, and I must ask for your kind indulgence.

Mr. PETER TAYLOR proposed a vote of thanks to the President.

This was seconded by Mr. THOMAS GREAVES, and carried with acclamation.

The members and friends then adjourned to dinner. The usual loyal and patriotic and professional toasts were proposed, and ably responded to.

JAMES W. INGRAM, *Hon. Secretary.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner were held at the Queen's Hotel, Leeds, on the 5th ult., the President, Mr. Benjamin Smith, Barnsley, in the chair. There were sixteen members and four visitors present.

A discussion took place as to the course this Society should adopt with regard to the election of Members of Council for 1886, and, after considerable discussion, it was decided to co-operate with the Lancashire, Liverpool, and Midland Counties Societies in supporting two candidates chosen by the four societies.

Mr. CARTER, of Bradford, made a few remarks, and proposed that all the Veterinary Societies should subscribe to support a journal giving a full report of their proceedings; but, after some remarks from Mr. GREAVES, the matter was postponed until the next meeting.

Mr. A. W. BRIGGS proposed, and Mr. SCRIVEN seconded the motion, that Mr. W. F. Greenhalgh, Leeds, be appointed Hon. Treasurer, vice Mr. Ferguson resigned; carried unanimously.

The PRESIDENT then read his inaugural address, and after thanking the members for the honour they had conferred upon him by electing him President for the current year, he referred to the great advantages derived from Veterinary Associations, and the great benefits derived by the members of the profession since their institution. He next referred to Clause 9 of the Supplementary Charter, and he trusted that the said clause would be altered or rescinded, so as not to interfere with what he considered the inherent rights of the members of the profession.

Mr. GREAVES moved a vote of thanks to the President for his address, which was carried unanimously.

Mr. GREAVES read counsel's opinion on Clause 9 of the Supplementary Charter, and was afraid that a new Charter could not be obtained under £600, which would be a large expenditure; but he thought the clause was a valuable one, as it acted as an incentive for young men to gain a higher degree. Messrs. CARTER, FAULKNER, and other gentlemen thought that the clause ought to be altered, so as not to interfere with the privileges of the members.

Mr. GREAVES moved, and Mr. CARTER seconded the motion, that a letter of condolence from the Society be forwarded to the widow of Mr. Peter Walker, of Bradford; carried.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE eighty-sixth quarterly meeting of the Liverpool Veterinary Medical Association was held in the Theatre of the Medical Institute, Hope Street, on February 12th, the President (Edwin Faulkner, Esq., M.R.C.V.S.) in the chair.

There were present—Principal Williams, Principal Robertson, and Principal Walley, and a large number of members and visitors.

Mr. LOCKE proposed, the PRESIDENT seconded, and Professor WALLEY supported a resolution to the effect that Mr. Storrar, of Chester, be nominated for a seat on the Executive Council of the Royal College of Veterinary Surgeons at the forthcoming election in May next; carried unanimously.

Mr. STORRAR then acknowledged in graceful terms the honour which it was proposed to confer upon him, assuring the meeting that, if elected, no

effort should be wanting on his part to promote the well-being and best interests of the profession to the best of his knowledge.

The President and members of the Executive of this Association were then appointed a committee to carry out this object.

In the absence of the Treasurer, who had not arrived, the Secretary was requested to present the financial statement. He pointed out that the finances of the Society were in very low water, a condition of things which was accounted for by the fact that several members had for some years been very irregular in the payment of their subscriptions. In round figures, there was due by defaulting members no less a sum than £43 to the Association. As the consequence, Mr. GREAVES proposed, and Mr. LOCKE seconded, the following resolution :—"That the Treasurer be requested to apply to defaulting members for the immediate payment of over-due subscriptions, and that he report the result of this application at the next quarterly meeting."

Mr. A. V. Field, Mr. A. W. Middlehurst, Mr. Arthur Leather, and Mr. Dobie, jun., were nominated for membership by the SECRETARY, and also Mr. Stafford Jackson by Mr. ELAM.

The PRESIDENT then delivered his inaugural address as follows :—

Gentlemen,—The duty of delivering an inaugural address at the annual meetings of Veterinary Medical Associations is now an established custom, in following which I desire at the outset to tender my warmest thanks to the members of this Society for the expression of their confidence, and the honour conferred in having unanimously requested me to preside over their meetings during the ensuing twelve months.

You who are members will readily understand the feeling of diffidence which possessed me as to accepting office at this crisis– a doubt as to my strength and personal fitness for the work which lay before the President and executive, if this Society was to live. Knowing full well that the past of the Association had at times been brilliant, and that the present was a period in which new societies were being born, I saw no reason why a society which had been in existence some twenty-one years should die, or become amalgamated, before a determined effort was made to resuscitate it ; and if by any means the hearty co-operation and enthusiasm of members could be aroused, the prosperity of years ago might be realised. Societies such as ours, it appears to me, have periods of prosperity and the reverse—as is seen frequently in trade : times when everything runs smoothly, all is vigour and activity ; others, when there is only lukewarmness, scanty attendance at meetings, the benefits to be derived from which not appreciated. Such has been our condition for some time past, owing to the defection of many who ought to be the backbone and support of the institution. Such, gentlemen, has been the state of things in Manchester and the Midlands within my recollection ; yet look, what are these associations to-day? Why, they are amongst the strongest, the former having a membership of sixty-eight, the latter, seventy-seven. Is there not an inducement for us, the office-bearers of this Society, to throw in our energies and best efforts to revive shattered fortunes—do our duty, looking hopefully and patiently for a brighter future, on the principle so well set out in the " Psalm of Life "—

" Learn to labour and to wait ; "

in doing which we strive not alone for individual benefit, but the good of all, especially for the advancement of our profession ? Let us remember, gentlemen, what is its due, what we are indebted to it ; and that life is short, there is not time for delay : then combine with us—you who are not members, you who were once members, but have withdrawn, and you who are members, but not active supporters—and assist in that mutual improvement which tends to professional and social progress.

The increase in number and growth of such associations as this is a necessity of the times, if professional advancement and *esprit de corps* is to be maintained ; they act as a landmark, and indicate the spirit of the age. Much good work have they done ; still more remains to be done through their medium, and any practitioner who might be a member and is not, loses golden opportunities of benefiting himself and of keeping his studies up to date : for do we not know that disease is ever changing, taking on new phases and complications, according to varying circumstances and conditions ; that many natural phenomena are as yet unsatisfactorily explained, which science has, and will still have to do much to elucidate?

Very much useful information can be gathered by those who regularly attend these Association meetings. Personally, I have materially benefited through my connection with them ; and I here express my indebtedness, and feel thankful that such exist. Often have I heard expressions of regret from members of the profession that societies such as ours were out of their reach, holding their meetings at too great a distance to enable them to attend. We who reside in large towns have not this drawback, but are favoured in having only to seize upon that which may be had for the asking.

Prior to leaving this portion of my subject, I feel constrained to say that, in my opinion, very much of that which is elucidated at these meetings, and that might prove of considerable value hereafter, is lost, inasmuch as our discussions are not fully recorded and published. I would ask, Has not the time come for our associations to regularly engage shorthand writers to take complete notes, and for the establishment of an Association Journal, one wherein ample space would be assured for the publication, within a reasonable time, of the general proceedings of these important institutions? This question I unhesitatingly answer in the affirmative, and consider it a subject well worthy of the immediate attention of the different associations.

The National Veterinary Association has amply justified its inauguration by the considerable success it has already attained. Meetings have been held in London, Manchester, and Birmingham, proving that the idea of concentration and centralisations of all that is best in the profession in this form was a desirable end to realise.

Many excellent discussions of subjects bearing upon professional and public benefit have taken place, all tending to the general enlightenment. The several presidents, with their executive, and the indefatigable General Secretary, have laboured freely and unstintingly, and may, I think, take credit to themselves for having in their day done real good for their profession.

The coming meeting (1886) to be held in Edinburgh, to be presided over by our valued friend, Principal Walley, will, I feel sure, be in no way behind its predecessors ; and I trust many of our Scotch brethren who have hitherto held aloof will be induced to join the Association. The President-elect has already done much for the profession ; he has not spared, but often spent, himself by labour perseveringly performed ; then, let us not forget to support him during his presidential year, by crossing the Tweed in considerable numbers, and thus do our individual parts to ensure the popularity of this Association, for by joining our professional brethren in Scotland we place *en evidence* our desire to amalgamate with them in this and every good work. In this Association we have a platform accessible to all, and where our one end and aim is professional and public well-being.

The veterinary profession has, from small beginnings, without Government grants or State aid, now become a consid rable and important institution, numbering some 2,800 members. That it is a benefit to the country, and an essential factor in the nation's welfare, goes without saying, or its progress would not have been so well sustained.

Assistance and encouragement have been given to its students by the Royal Agricultural Society, the Highland and Agricultural Society, Major-General Sir Frederick Fitzwygram, and many others, each and all of whom have taken a kindly interest in its welfare, and deserve well at our hands. The establishment of teaching institutions in London, Edinburgh, and Glasgow—three of which are private undertakings, the result of individual enterprise and perseverance—go to show the material advancement, vigour, and vitality which exist; and now, as a *summum bonum*, the profession has of itself obtained that which has been so much needed for its future welfare—a home—suitable in all its requirements, I am given to understand, for such a considerable family; and I am sure that you all re-echo my sentiments in saying, Long may it prosper and be united, for a house divided against itself cannot stand.

In 1876 it was considered expedient that a new class of members of the Royal College of Veterinary Surgeons, to be called Fellows, should be created, in order more effectually to promote and encourage the study of veterinary medicine and surgery; and for this purpose a Charter supplementing the one of 1844 was obtained.

This step, I take it, no member of the profession disapproves; a higher degree undoubtedly promotes emulation and professional advancement, but this, of itself, was apparently insufficient for those who drew this Charter. A clause, numbered 9, was inserted, by which it is provided that, after August 23rd, 1886, none but Fellows or members of the then Council can serve as members of Council or Examiners of the Royal College of Veterinary Surgeons. In the 1844 Charter it states that Members of Council shall be elected from amongst members of the body politic and corporate. From that date down to 1886, members have had the privilege (if chosen) to act as Members of Council or Examiners. The privileges then granted, what have they done to forfeit? Why take them away, and say, "If you will submit yourselves to another examination, pass, and pay £15 15s., we will give you those privileges (which we took from you as members) back again, with the addition of a Fellowship diploma." I ask, Is this justice? Are any of those gentlemen who acted as Examiners and Members of Council prior to 1876, and have so acted since, any better Examiners or more attentive and enthusiastic as Members of Council since they were Fellows? Echo answers No. Then, why debar those who are still competent and capable for either position, though unfortunate in not being Fellows, but members coming under the operation of coercion Clause 9?

No doubt the object sought—viz., to get all that was best and most capable in the profession made into Fellows—has not been attained, so far. If there were no members competent to act either as Members of Council or Examiners, nor any likely to grow up, notwithstanding our improved college curriculum and higher standard of examination, then I should say that the members had no grievance. But what do we find from 1876 to 1886? Notwithstanding there being an abundance of Fellows, the profession at large elects to send some *members* to Council, and the *Council* themselves appoint some members as Examiners. What does this prove? Where the profession and Council have unlimited choice, they appoint the men they consider most suitable, be they members or Fellows. What is the inference if the selection is confined to Fellows? Why, the profession is not so well served.

To the President, Vice-Presidents, and Members of Council I would here say: Your body is supposed to be a representative one, not elected solely by Fellows, but by the votes of the whole profession; consequently, your duty lies equally towards both. These are not the days of disfranchisement but enfranchisement, and were this clause drawn in 1886 instead of 1876, it

would be thrown out. We give you credit for no desire to depreciate those who are members only, by enforcing this clause ; we do think you all desire to deal honestly and fairly ; and much is the profession indebted to you for the time, expense, and labour you so freely give. Further, we cannot think the Fellows, as a body, will stoop to take (perhaps legally, perhaps not—counsel differ) and enrich themselves with privileges withdrawn, without reason, from their fellow-members.

I am of opinion the Royal College of Veterinary Surgeons have power to obtain the repeal of this objectionable and retrograde clause. As to inconsistency and expense, it is not the first example of the former. In 1844, the Secretary must be a member R.C.V.S., in 1876 he need not ; in 1884 Members of Council must be members, in 1886 they must be Fellows ; and I have no doubt funds could readily be obtained to meet the latter. Remember, *legality* is not alone worthy of consideration. Since 1879 we have been a united profession. Do not divide us now by your own action, but deal out equity and justice.

It is pleasant, agreeable, and refreshing to turn from the discussion of the preceding subject to one of more sympathetic interest, viz., the National Veterinary Benevolent and Mutual Defence Society, a society that, through its executive, has for years been doing a good work, pecuniarily assisting the sick, helpless, widows, and orphans of professional brethren when necessitous. What can be more praiseworthy than such a society existing in and upon the profession?—its officers busy men, engaged daily in practice, sacrificing time and means in order to render help when most needed. Those who are familiar with its working know that it commends itself to the generosity of all those who are able and willing to lend a helping hand.

In connection with this Society—that is, at its recommendation—a youth can obtain a free studentship (provided he be the son of a deceased or impecunious veterinary surgeon) at the New Veterinary College, Edinburgh. This kindly act of benevolence originated with our warm-hearted friend, Principal Williams, and has since been supplemented by Principal McCall, of the Glasgow Veterinary College. To both these gentlemen the warmest thanks of the profession are due.

The defence portion of this Society aims at supporting, providing professional and pecuniary assistance in cases where an action at law is threatened or brought against any of its members, and if the action be arbitrary, harsh, and unjust, the Society undertakes the defence. Much good work has it done, more it is still capable of. Quietly and unobtrusively has it wended its way, and been a source of comfort, support, and relief to many of those who have unfortunately required its services—services which its President, (Mr. P. Taylor), Treasurer (Mr. T. Greaves), Secretary (Mr. G. Morgan), and Council always freely and ungrudgingly give without fee or reward.

In am desirous here of congratulating the Royal Society for the Prevention of Cruelty to Animals upon their suspension of what was considered by many veterinary surgeons as an aggression, or undue interference with their liberty and discrimination in the performance of professional duties. This society has over and over again given ample justification for its existence, and seeing that its end and aim is closely allied with that of the veterinary surgeon—viz., to alleviate pain and suffering among the lower animals—there should exist between this society and our profession a bond of the closest union ; and such would be the condition of things. I believe, if one accorded more credit to the other for a mutual desire to deal honestly and do what was right.

Gentlemen, in the prosecutions undertaken by this society, ought it to be necessary at times for an officer prosecuting to exaggerate his case unduly in order to secure a conviction? Yet such is the case, owing to a want of equal

fairness and honesty on both sides. Or should it be essential that a veterinary surgeon appear in order to give an impartial statement that may counteract a biassed and incorrect official description? Further, has not the time gone by when it should be in the power of an officer of this society to stop in the street any and every case he may choose to take before the Bench, and obtain a summary conviction—the whole taking place within an hour or two—totally unknown to owners, who are unrepresented, and cannot appeal unless the fine be £5? This, to me, is quite un-English, adjudicating upon a case with evidence from one side only.

Another procedure is to send an animal in from work, call subsequently with a veterinary surgeon, inspect, and afterwards leave without saying whether or no proceedings will be instituted. The owner, in happy ignorance, thinks he has done no wrong, until some two or three weeks have elapsed, when he receives a summons. What opportunity, then, has any veterinary surgeon he may call in of correctly knowing the animal's condition three weeks previously? Very little; and if called upon, his evidence is at a discount, as the society's officers well know; whereas, if the owner was aware proceedings would be taken, upon consulting a veterinary surgeon, at once he would know his position, and be able to act fairly by the society and claim fair treatment at their hands. In mentioning these modes of procedure, I look for some reformation, as I am convinced the more honourably, openly, and fairly this society proceeds, the more are they likely to be met on the same terms. An advantage, in my opinion, would accrue to the society, the public, and ourselves, if our profession was more fully represented upon the central and local committees of the R.S.P.C.A., and also upon the magisterial benches.

Many other topics there are which would afford matter to further enlarge upon, such as the present position of veterinary science, college and practical education, and examinations; but I am particularly anxious not to encroach upon the time that will doubtless be more profitably utilised in the reading and discussion of the paper which Principal Walley kindly brings before us.

I will, in conclusion, say that, as this Association was formed in 1864 for, amongst other reasons, first, the establishing, promoting, and maintaining a good and friendly understanding amongst its members, second, the supervision and protection of their pecuniary interests, so it is in 1886.

Let us, then, as members of one profession, strive to be united by observing one towards another a general bearing and course of conduct tending to the attainment of these objects. Strict attention to professional etiquette on the lines laid down (here) so well in November last by Principal Williams, will bring and keep us close in kindly feeling and mutual respect; and if, at any time during the year, there be a cause of unpleasantness occurring between members, let me urge upon them to bring it at once before the Society, that it may be investigated and an arrangement of a satisfactory nature arrived at: do not delay; it is dangerous. And, as a last word, I say, Let us do to each other as we would be done by.

A vote of thanks, at the instance of Mr. GREAVES, was then most heartily and enthusiastically awarded to Mr. Faulkner for his able and thoughtful address.

Professor WALLEY then proceeded to read his essay on

THE FUNCTIONS OF THE VETERINARY SURGEON IN THE INSPECTION OF HORSES AT SHOWS, AS ALSO FOR PURCHASE.

Gentlemen,—When first asked to prepare a paper for discussion by the members of this—shall I say my parent?—Association, I felt at a loss in reference to the choice of a subject which would embrace the true essentials of such a production, viz., attractiveness and utility. Remembering that

such corporations were established for the purpose not only of advancing our art, but also for the subsidiary purpose of improving our professional status, I realised that my field of choice was a larger one than if I were confined to the list of purely professional, or rather scientific, topics. Chance fixed my choice, and thus saved me any further thought on that score. Your President agreed with me that "the Functions of the Veterinary Surgeon in the Inspection of Horses at Shows, as also for Purchase" could be very appropriately and very profitably discussed by a body such as is included under the title of the Veterinary Medical Association. It remains for you to show, by the interest you take in the matter, and the amount of spirit you infuse into the discussion which I hope will follow the reading of this paper, whether you homologate or not the action of your President and myself. My principal reason, Mr. President and gentlemen, for choosing the subject I have done, was this: For some time I have observed in certain quarters a great tendency to disparage the services of the veterinary surgeon in the connection above indicated, and many hard things have been said of us, and of the motives which guide us in the performance of these duties, by writers in agricultural and similar publications. Honest and just criticism need never be feared by any body of men who are possessed of the consciousness that in what they do they are animated by the desire to deal justly by all, and to perform every duty entrusted to them, so far as lies in their power, in a strictly honourable manner; but when base motives are freely imputed, and when every species of ignorance is attributed to them, it is, I think, the paramount duty of all to join together in an energetic and courageous defence, as well as in a vigorous vindication of their professional honour.

Realising my position as a teacher of veterinary science, as a member of your Council, and as having been so recently honoured by being selected as worthy to preside over the deliberations of that Council, I felt that the duty of endeavouring to meet and to answer the charges I have mentioned would be more appropriately performed by such an one as myself than by a private practitioner, more especially seeing that very many practitioners are more or less associated with agricultural societies, and are dependent for a large share of their income upon the fees derived from examination of horses as to soundness, and that, as a consequence, it might be thought that any remarks they might have penned had been dictated by a sense of pique, or personal injury, or slight.

I have said that my choice of a subject was determined by chance; the chance was in the form of an article published in the "Scottish Agricultural Gazette Almanac for 1886," and written by some one who, for reasons best known to himself, hides his identity under a pseudonym, that of "Macgregor," instead of boldly acknowledging his own progeny by adhibiting his proper name. Into the motives which induced the writer to bring an injurious charge against a body of men whose interest it is, and must ever be, to do everything in their power for the good of a science so intimately connected with their own, I do not intend to inquire; but I think you will agree with me when I hazard the guess that "Macgregor" is either a disappointed exhibitor, a self-satisfied judge, or a horse-dealer.

Before proceeding farther, it will be as well to inquire into the function of agricultural, and particularly of horse show, societies. So far as I am enabled to judge from studying the history of these bodies and from watching their operations, they were founded for the several purposes of improving and encouraging agriculture, of stimulating farmers and breeders to cultivate the best breeds of every class of animal, and of so modifying, by judicious selection of sire and dam, the characteristics of these animals as to fit them, as perfectly as animal life can be fitted, for the purposes to which an enlightened and cultivated intelligence has devoted them.

That the intentions of the founders and supporters of these societies have been realised—aye, and more than realised—is proved by the relatively greater value of our live stock as compared with that of any other country in the world. Seeing that agriculture was the original occupation of man, and that its prosecution is an absolute essential of our daily life, we are, I think, more than warranted in glorying in the proud pre-eminence to which as a nation we have attained. But while we indulge in a little justifiable jubilation, we must not forget that a pre-eminent position is at all times difficult to keep, and that other nations will enter the lists and do battle with us on our own ground. That such a contingency is more than a probability has been shown by the success which has attended the efforts of our French friends to compete with us on the Turf, and of Americans and Australians in the breeding of shorthorns.

In a paper read by me in Edinburgh in July, 1884, on the "Relation of Veterinary Science to Agriculture," I stated that the danger which threatened our high position as breeders of horses lay, not so much in the rivalry of other nations, but in the utter neglect of proper means of assuring ourselves that all horses deemed worth a place in the prize-list were constitutionally fitted to propagate their species. I said, again, that this was "the rift in the lute which was likely to spoil its melody." How has that warning been received? With absolute indifference! Much more—with attempts to defend an absolutely indefensible position, and that, too, by men whose whole aim and object ought to be not merely the production of a perfect animal, but in honestly using every means in their power to show the world that the animal so produced is perfect.

What means are there at our disposal by which we can accomplish the latter desideratum? Interested writers will tell you, *by appointing impartial and honest judges.* Yes; all men, before they accept this position, should thoroughly determine in their own minds that they will act both impartially and honestly, and yet we hear interested parties declare after almost every show we attend, *that the judging has not been fair or right.* Such interested parties there must, in the natural order of things, always be, as disappointed exhibitors will frequently endeavour to throw the blame of their defeat not on the demerits of their exhibits, but upon the want of honesty, impartiality, or knowledge on the part of the adjudicators. In the natural order of things, again, it is not always possible to find an impartial judge, at least in the sense that the majority of men who either do know or who pretend to know anything about horses have crotchets as to what a horse should be like to be in their eyes perfect. With one man the head is the all-important point; with another, the fore-legs; and with another, the hind-legs. Again, depth or chest and of barrel are demanded; and yet again, the feet, especially the fore, are the only points worth noticing, except, strange anomaly, the amount of feather a horse possesses, and that without reference to its being of natural or of forced growth. Nowhere can we find more convincing proof of these statements than in the article signed "Macgregor." A judge, in my opinion, should have no crotchets; he should, from experience, be able to give due weight to every point, and especially to those points which are of the greatest importance in rendering horses capable of performing the work for which they are intended. Are the majority of judges capable of doing this? My answer is a decided negative, and for the simple reason (I am speaking particularly of judges of heavy horses) that they have little opportunity of observing the effect of the hardest and most trying of all work to which horses are subjected, viz., town work. Most of our judges of heavy horses are breeders whose experience is confined to the effects of agricultural or rural work; and the greater number of them have received no special training in physiology, or anatomy, or in pathology. By dint of much practice many of

these men attain to a certain standard of excellence, and in an empirical manner are successful in detecting important faults ; but how little are they qualified, in the vast majority of instances, to detect those faults which it is the special province of the skilled veterinarian to expose ; or how can they attach the proper amount of importance to each individual fault?

"Macgregor" says, "As a rule dealers and farmers are better judges of soundness than surgeons." Listen, my professional brethren, and hide your heads for very shame. But perhaps I am doing "Macgregor" an injustice ; probably he refers to human surgeons, as he does not employ the distinguishing adjective ; if so, I quite agree with him. But taking "Macgregor" at his own estimation, I would like to ask him, By virtue of what special attributes or qualifications is the dealer or the farmer a more capable judge of soundness than the veterinary surgeon? Does he found his assertion upon an anatomical or upon a physiological knowledge? No ; for he does not possess such. Does he found it upon a surgical basis? Perhaps so, but it is of a very limited extent.

Did "Macgregor," I wonder, ever watch the manœuvres of the average judge in his attempts to manipulate a horse's legs for the purpose of arriving at a knowledge of the fact of his being sound or unsound? If so, he must, if he is the skilled judge of horses he would wish, from the tone of his article, to lead outsiders to consider him—he must, I say, more than once in his life have involuntarily clenched his teeth and screwed up his facial muscles pretty hard while watching the operation, as one is wont to do when a harsh or faulty note in music strikes upon his tympanum. Charming and refreshing in their innocence and simplicity are some of the assertions and confessions of our critics. The dealer and the farmer are better judges of soundness than the surgeon! Yes, forsooth, when the former wishes to purchase a horse, he can then, very frequently, point out to his fellows and to the seller many defects, the existence of which the latter is not cognizant of, and in the detection of which the despised surgeon would, most assuredly, in many instances, find himself nonplussed ; but in the event of the veterinary surgeon condemning, as being unsound, a horse that a dealer may have to dispose of, he is not only most conveniently blind, but is frequently ready to prove that the veterinary surgeon is wrong in his opinion, by heaping upon his head all kinds of abuse.

Much, says "Macgregor," has been said and written in recent years concerning the importance of soundness in horses to which prizes are awarded at national shows. "This subject has received more attention on account of its having been freely remarked that one of the best known horses of this year (1885) was unsound at the moment of being awarded an important prize." What a damaging admission. What had the judges done with the special qualification claimed for them by "Macgregor" on this particular occasion?

I will, by his permission, cap "Macgregor's" admission, by informing him that I have seen a roarer in one instance, and a blind horse in another, placed at the top of the prize-list. Nay, more : one of the best horses, or one that was generally looked upon in that light, that ever trod Scottish soil, could not go fifty yards, even at a jog-trot, without emitting a very undesirable and inharmonious musical note from his larynx ; and one of his progeny, looked upon as the best colt of his year, could not trot a hundred yards without proclaiming, in a most pronounced manner, that he, like a good son, followed his father—at least, in his fondness for music.

Large premiums are offered by our agricultural societies for the best sires, and it is, I aver, a sin and a shame that every possible precaution is not taken to ensure that these animals are worthy of the position to which they are elevated. In most instances, I believe, in England the question of soundness, and particularly the question *of freedom from hereditary defects*,

is looked upon as of primary importance ; and in many instances the directors of shows stand firmly to their guns and uphold the decision of their veterinary inspector, upon whose dictum they implicitly rely. Of one such case which came under my own observation I have a very distinct recollection. It was a case in which a hundred pounds premium had been awarded by the judges to a particular stallion, as the best stock-getter for hunting purposes in the yard. After the award came the veterinary examination ; it showed that the horse had a curb, and consequently in the judgment of the veterinary surgeon and of the directors of the show he was disqualified. The decision, as such decisions usually do, caused a great explosion ; the owner of the horse loudly declared his intention of invoking all the veterinary aid he could press into his service, and he succeeded in securing that of several eminent men, but the directors stood firm. The owner and his professional supporters were right, the horse was sound in a sense—he was what is called *practically sound*—but the question was, "*Is he sound for the purpose for which the premium is awarded?*" The veterinary inspector and his friends, of whom I was, quite accidentally, one, said No, and the premium was withheld in consequence.

(*To be continued.*)

PROCEEDINGS OF THE THIRD GENERAL MEETING

OF THE

NATIONAL VETERINARY ASSOCIATION.

(*Continued from page* 387, *vol. xxi.*)

The evil results of inoculation are extension of the inflammatory process along the tail to its root, and thence to the vulva, perinæum, vagina, pelvis, anus, thighs, udder, scrotum, and muscles of the haunch, back, and loins. This result is more likely to occur if the system of the animal operated on is unhealthy at the time, or if sufficient care has not been exercised in the selection of the lymph ; but occasionally it occurs where every precaution has been strictly observed, and in the hands of the most skilful operators. Doubtless in such cases the lymph possesses unusually virulent properties, or the system of the inoculated animal is peculiarly susceptible to the action of irritants. The inflammatory condition is allied in many respects to erysipelas, and we know how much more liable to this form of inflammation some constitutions are than others.

Although the inflammatory condition set up by inoculation with P.-p. lymph, is, on the whole, a circumscribed one, it is nevertheless an infective one ; and as such, like all other infective inflammations, may pass far beyond its original boundaries—mainly, of course, by the lymphatics.

When the inflammatory action is about to extend upwards, the local symptoms become intensified; the heat, tenderness, redness, and swelling are increased, and the systemic symptoms are more pronounced.

In July, 1883, a cow, which had been inoculated by Mr. Rutherford, died, owing to the lesions extending to the connective tissue around the right kidney. The inoculation had been successful, and Mr. Rutherford had amputated the tail, but no extensive lesions existed either about the base of the tail or haunch. On *post-mortem* examination the new tissue around the kidney existed to such an extent as to cause it, when laid on the table, to present the appearance (in shape) of an enormously enlarged and elongated large pulmonary lobe. The peritoneum around the bladder and uterus was very much inflamed.

If the inflammation terminates in sphacelus—either circumscribed or diffuse—the involved parts become of a dirty red colour, cold and insensible, and a line of demarcation separates them from the healthy structures; moisture may, or may not, appear, and form phlyctenæ on the surface,—this will depend upon the form of gangrene (*i.e.*, whether it is wet or dry). In some cases large swellings are formed in the neighbourhood of the hips, which on incision give exit to fluid or semi-coagulated lymph, and if undisturbed this lymph may degenerate and form abscesses; if abscesses are formed, they are sometimes succeeded, on eruption, by unhealthy, chancrous-looking ulcers.

The inflammatory action may kill the animal by exhausting the vital powers (though it is wonderful to what length it may extend before alarming constitutional symptoms are developed), by involving the pelvic organs, by sphacelus, or by the absorption of septic matter producing septicæmia.

Treatment of inoculated part, if untoward symptoms appear.—The majority of operators recommend (what indeed is the most natural and rational method of treatment), if there are any signs of gangrene or of extension of the inflammatory action, that the tail should be at once amputated. Mr. Rutherford pertinently remarks that, if possible, the amputation should be carried out to a point above any plugged vessels.

For the purpose of arresting the hæmorrhage, a ligature of tape, with a small compress of tow (on the middle coccygeal artery), placed about an inch above the stump, and retained for twelve hours, is all that is required, and saves the animal the pain of cauterisation.

If amputation is not practised, the parts may be deeply scarified and freely dressed with antiseptic applications.

In the inoculation recently practised by myself, I have adopted the precaution of applying a ligature moderately tight *above* the inflamed part, with the result that I have succeeded in preserving almost intact about 60 per cent. of tails; and where the inflammation has from unavoidable causes stolen a march and extended up to the root of the tail, I have effectually prevented its extension to the pelvic fascia, by drawing a line *all round* the part with No. 5 carbolic acid.

Constitutional remedies, depending on the character of the inflammation and the condition of the animal, should not be neglected.

Mortality of Inoculation.—The losses from inoculation are not great—at the outside, three to five per cent., where proper precautions are taken; *unless untoward circumstances arise, there should be no deaths at all.*

Rationale of Inoculation.—The advocates of inoculation hold that it renders animals proof against the contagion of P.-p., if not for life, certainly for some months, or even for years. How does it do this? It differs entirely in its results from all ordinary inoculative contagia, inasmuch, as already pointed out, as it does not produce the same visible effects as the natural disease; consequently, we are not warranted in assuming that the virus enters the blood and circulates through the whole of the system, although the production of some febrile reaction would seem to indicate that it does so; and if it does not enter the circulation, it is difficult to understand how it is that it renders the animal proof against future attacks. If its effects were simply local, its action would not be in any way superior to a blister or seton; and of the wonderful change wrought, within a very short period, in the condition of the blood by the introduction of setons, we have good evidence in their power of preventing many charbonous diseases, such as Black-quarter, in cattle.

Inoculators also make at times two very contradictory statements—viz., that "the inoculation will not take if the animal is already the subject of P.-p.," and that "inoculation is not only preventative, but curative." How it becomes the latter, when the system is already saturated with the virus, is

difficult to conceive, unless on the principle of counter-irritation. That the inoculative lesions may be developed even while the system is labouring under the effects of P.-p., I have had, during the last few years, many opportunities of proving. I am satisfied, however, that the operation materially modifies the intensity of an attack, and circumscribes the extent of the lesions.

However difficult it may be to understand the action of inoculation, it is certainly a fact that since its introduction into Edinburgh and Leith by Mr. Rutherford P.-p. has materially diminished; but time is, of course, required to prove that this diminution will be permanent, or that it is due to the operation in any great degree, as periods of decline in the disease are frequently observed in every infected district. It is an undoubted fact that those animals which have been successfully inoculated thrive very rapidly after recovery from its effects; and if it can be deprived of some of its objectionable features, and its prophylactic powers are permanent (though we can hardly hope this, seeing that the natural disease itself is not permanently protective), it may yet prove a great blessing to stock-owners; and those who have so consistently and perseveringly advocated its introduction will deserve the best thanks of the profession and the public.

Pathological Anatomy of the inoculated part.—Whether we look at the structures at the immediate seat of inoculation in mild cases, or at the tissues in the pelvic region in virulent inoculative inflammation, we shall find a condition of matters closely allied to that which is seen in the lung-tissue in the natural disease—at least so far as the pathological processes are concerned.

These processes are not confined to the skin and the subcutaneous tissues alone, they extend to the muscles and other adjacent organs.

If a section is made through the skin of the inoculated part, it will be found that the dermis is greatly thickened, infiltrated with lymph of a yellowish or straw colour, and its vessels intensely hyperæmic; here and there hæmorrhagic spots will be detected.

The subcutaneous connective tissue, the structures of the vulva (occasionally the vagina, bladder, uterus, perinæum, and anus), and the pelvic fascia will be found in the earlier stages surcharged with the same yellow—fluid or semi-fluid—lymph, and in the later stages they are the seat of a new interstitial growth, which ultimately becomes organised, and, in case of recovery, forms a part of the system.

The lymphatic vessels are charged with lymph, the blood-vessels ultimately become involved in the process, and plugged with thrombi; while the muscular tissue becomes pale, friable, infiltrated with lymph (moist), and its transverse striæ destroyed.

Microscopical examination of the tissues reveals extensive infiltration with cell elements in the early, followed by increase of exudates and new growth in the later stages.*

Micrococci, similar to those which I have described as existing in the lung tissue, will also be found in large numbers. The affected parts possess a peculiar odour.

The lymphatic glands become inflamed, and either indurated or caseous; in one instance recently, I found that hæmorrhage had taken place into the substance of a gland and the surrounding sub-peritoneal connective tissue to such an extent as to form a hæmatocele several pounds in weight.

If the process is not very destructive, the glands become indurated and mottled, or undergo dry caseation.

* In the light of our recent knowledge of pathological processes, we are enabled to say that in no case do exudates become organised, and that new growths associated with connective tissue are interstitial in organ.

That preventive measures may be successfully carried out is proved by my experience in Edinburgh.

Professor M'Call some time ago stated publicly that the Edinburgh byres "were never free from Pleuro-pneumonia." He spoke in ignorance of actual facts. For a period of twenty-three months—from May, 1880, to April, 1882—there was no case of Pleuro-pneumonia in the city of Edinburgh, and there have been, on other occasions since, periods of several months of immunity from the disease; and I have no hesitation in saying that in the vast majority of instances fresh outbreaks have been due to the introduction of animals (many of them Irish) having the disease in their systems at the time of purchase; very frequently, indeed, has the malady appeared in newly-erected byres or in buildings not previously used as byres.

In reference to inoculation in particular, I have to say, what I have elsewhere stated, that in a certain sense it is a very successful prophylactic measure, in all cases arresting the progress of the disease in a byre; though it is only just that I should at the same time say that I have over and over again met with instances where the disease, not only in byres but in herds, has never extended past the animal or animals first affected. Inoculation is most to be recommended, and is most successful, in town dairies where cows are fattened as soon as they cease to be profitable as milkers, and sent to the butcher for slaughter, and not sold for store purposes. That there is danger of infection arising from inoculated animals is proved by the fact, that even in the lungs of cattle in which the operation has been successful, there may be unsuspected circumscribed patches of disease, that may subsequently act the part of infective centres to new comers. Professor Laws has written strongly on this subject, and although I do not endorse all he says, I introduce his remarks for consideration here.

In an article on Inoculation in *Veterinarian*, July, 1882, pages 468-70, he says—"The liquids inoculated are the virulent products of the lung plague; and as these do not induce disease of the lungs, but only of the tissues where they are inserted, it cannot be supposed that they exert any influence on the economy through any direct action in the normal seat of the disease. If protective at all, it must be by reason of the reproduction of the germs in the blood, or in the seat of inoculation. If in the blood, there must be danger of their being given off by the various free surfaces—notably by the lungs; if in the tail, there is still the risk of the germs escaping from the wound, drying up in the building, and being inhaled by other cattle with fatal results. It is true that the risks are incomparably less from germs escaping from a wound in the tail than from the lungs. Yet, even from the inoculated wound, the disease has been conveyed. Reynal mentions the case of an inoculated Brittany cow at the Alfort Veterinary School which infected two others standing with his.

"I have now under observation a stable into which the lung plague is alleged to have been introduced by inoculation: the stump tails attest the reality of the inoculation, the raw ends of several its recent adoption, and yet the sickness prevails."

"Reason and experience agree in showing that the poison may be thus introduced into healthy stables, and therefore inoculation must be absolutely condemned whenever a speedy and effectual stamping out of the disease is desired. No country has ever succeeded in exterminating this plague by practising inoculation—Spain, Belgium, Holland, Prussia, England, Australia, South Africa, New York, and New Jersey.

"It may be conceded that by means of inoculation the disease has been quickly passed through individual herds, and that, when a country or district makes inoculation universal, the mortality is greatly reduced, yet the adoption

of the operation for healthy herds but multiplies the centres of infection; and when a country is subjected to this, the plague is invariably kept up by the occasional contamination of young and uninoculated animals."—Extracted from *American National Live Stock Journal.*

In no European country has inoculation been more extensively, more scientifically, or more fairly tried than in the Netherlands; and what has been the result? The following statistics, from the Annual Reports of the Agricultural Department of the Privy Council Office for 1881 and 1884, show that where compulsory inoculation has signally failed, compulsory slaughter has succeeded in so far suppressing the disease, that at the present moment (according to information supplied to me by Mr. Cope) it only exists in the Spœling district.

In the Privy Council Report for 1881 we find that in 1871, with slaughter and isolation and non-compulsory inoculation, there were 6,078 cases.
In 1872, 4,009 cases.
In 1873, when further regulations for the registration and regular inspection of cattle and the restriction of fairs and markets were enforced, there were 2,479 cases.
In 1874 (*inoculation was made compulsory in April*), 2,414 cases.
In 1875—under slaughter and compulsory inoculation, with registration and weekly inspection of suspected herds—2,227 cases.
In 1876—when slaughter of the whole herd was made compulsory—there were 1,723 cases detected.
In 1877, 951 cases.
In 1878, 698 „
In 1879, 157 „
In 1880, 48 „
In 1881, 279 „
In 1882, 62 „ (detected in lungs after death.)
In 1883, 200 „
In 1884, 232 „

Legislative Means for the Suppression and Prevention of Pleuro-Pneumonia.

After the lapse of nearly forty years' experience of this malady, our Legislature has conspicuously failed in its efforts to exterminate it, and it was, I take it, the main object of those who suggested the subject of P.-p. for discussion to inquire into the reasons of this failure. In speaking of this matter in the "Bovine Scourges" and elsewhere, I have frequently pointed out that the legislation brought to bear in the past has been abortive, mainly because it has been spasmodic, fragmentary, and permissive in its character; and I have further stated, and again repeat the statement, that the adoption of half measures will never eradicate the pest. With such in operation, it will still continue one of the opprobria of our veterinary sanitary system. It is for us, individually and collectively, to urge upon the powers that be the necessity of taking the bull by the horns, not only metaphorically but actually, and of effectually arresting his further career by the adoption of the only rational and radical method of suppression, viz., *slaughter.*

I feel convinced that the fault does not lie at the door of the veterinary advisers of the Privy Council; if I am not mistaken they are unanimously of the opinion that *slaughter is the only effectual preventative*, and it is for us, their brethren, to support them in urging upon the responsible authorities the necessity of carrying it out.

In Scotland, the system of "stamping out" by slaughter has been largely and successfully practised by county local authorities; but the urban authori-

ties, and especially the Metropolitan Local Authority, have hesitated to place the burden involved in slaughtering on the shoulders of the ratepayers on the justifiable and intelligible plea that, *so long as slaughtering is permissive it would be useless to adopt the system in isolated cases, as in all probability the disease would be immediately reintroduced from without.* I say this argument is justifiable; it is more, it is unanswerable. That which has happened over and over again in the city of Edinburgh, has happened in other cities, towns, and counties in the kingdom. Byres and cow-sheds have been freed from the scourge, cleansed and disinfected to the satisfaction of the veterinary inspector; and all has been in vain, for in numerous instances, in the course of weeks, months—ay, even of days—it has reappeared; and from whence?—from Ireland, or from some adjacent or distant county. In the vast majority of isolated outbreaks in the northern rural districts during the last few years, the malady has been introduced by Irish store cattle; in many of the fresh outbreaks occurring in the byres of the metropolitan burgh, Irish dairy cows have been undoubtedly the sinners. But I do not wish to put the whole of the fault upon these animals; I wish to distribute the credit justly, and I assert *that where the disease has not been introduced by Irish cows, it has been brought in by animals from the northern counties of England.* That there is still going on a vast amount of "blockade running" I am thoroughly convinced, and that there is in some districts a very lax application of existing regulations I am equally convinced; and I do not think I am far wrong when I say that *the short-sightedness, the ignorance, and the meanness of Local Authorities in this country, and of Boards of Guardians in Ireland, has much to do with this present discreditable condition of matters.* Were even the existing regulations (unsatisfactory though they are) rigidly enforced, I am satisfied that the disease would be kept within at least reasonable bounds; and I am further satisfied that those who are anxious and willing to assist the authorities in their endeavours to suppress it would redouble their efforts for the realisation of so desirable an end. As it is, the tail of the snake is alone attacked, the head retains its vitality, and lives and flourishes as a constant source of anxiety, vexation, and loss to those Local Authorities who are desirous of trampling it under foot.

Stirlingshire, to-day, attacks the tail and performs a very successful amputation; the head still lives, however, and to-morrow the enemy has again to be attacked and defeated. To some, the system of stamping out disease by the use of the pole-axe, or the rifle, savours of brutality, and is regarded in the light of an acknowledgment of our scientific ignorance and helplessness. Granted that it is so, science is not dragged into the mire because its devotees fail in the battle with an invisible, inscrutable, and ubiquitous enemy. If we can only check the growth of the seed by starving it, by depriving it of its pabulum, by all means let us do so. As we have, on occasion, done with Rabies, with Sheep-pox, with Rinderpest. and with Foot-and-mouth Disease, so let us do with Pleuro-pneumonia, and we shall undoubtedly reap the reward of all bold and energetic warriors—SUCCESS. Lastly, I would observe *that the system of slaughtering should be associated with imperial compensation.*

Mr. RUTHERFORD said: In opening the discussion on this malady, Contagious Pleuro-pneumonia, I am placed at a great disadvantage, inasmuch as I fully expected to have in my possession some weeks ago, the paper which was to have been written by Mr. McGillivray, who, however, failed to provide it. At the last moment I was furnished with Professor Walley's paper, at a time when I and others were busily engaged in Scotland with the examinations. The result is, that I have not been able to prepare a paper or anything else; therefore, I simply come here to give you my ideas of the

disease, as I have met with it in practice. My acquaintance with the disease dates, like Professor Walley's, from a very early period indeed; from the time when that distinguished Professor of veterinary medicine, John Gamgee, taught in Edinburgh. At that time the byres of Edinburgh—I may say the byres of Scotland, and of the whole country—were periodically decimated by this disease; and no preventive measures were taken to arrest its progress, because it was believed, and we were taught by another distinguished veterinarian, the late Professor Dick, that the disease was not contagious. It was as much as our comfort at College was worth to question that opinion, and none of us dared to do so. However, I had the good fortune to witness and know of some of Professor Gamgee's operations; and I noticed that although he killed a large percentage of the animals he operated upon, still those that survived, however much they were exposed to the disease afterwards, had immunity; nor did they seem to communicate the disease to those with whom they cohabited. Professor Walley makes special reference to the contagiousness of the disease. It seems to me he draws a very narrow line between contagion and infection. As to its infectiousness I have no doubt; and you who have taken the trouble to consider the matter will say it is both contagious and infectious. The disease itself is simply a specific fever, and the lung lesions are a sequel of that fever. If the virus introduced into a healthy animal can produce similar lesions, we have satisfied ourselves that the disease is contagious. I do not think it is necessary or advisable to have *lung lesions* as the result of the operation: if lung lesions were produced, it would render the operation worse than useless, for every animal inoculated would become a centre of disease. Fortunately it does not do so; that I can say, after having inoculated many thousands of healthy animals. With regard to its dissemination, it is easily disseminated by actual contamination. In other cases it is communicated by currents of infected atmosphere. I had a singular instance of this in Edinburgh lately. A part of Edinburgh became affected, and another portion divided from it by a canal, became subsequently affected, although there was no actual contact of cattle. This was a case where the disease was effectually communicated by atmospheric currents—by air charged with the virus of the disease. I have had no actual experience that it can be conveyed by the food being infected, but I have a belief that straw or fodder will retain the contagion for many months. It is undetermined how long a building will retain the disease—three to twelve months, I believe; and I think the present mode of disinfection tends to keep up the contagion. I think the ordinary mode of disinfection by whitewash covers up the contagion; mere whitewash will not destroy the virus, it merely covers it up, and when the whitewash falls off the virus is again exposed: if it were applied boiling hot and strong enough, I believe the results would be different, but mere whitewash is a covering for, and not a destroyer of the contagion. It is not my intention to enter into the paper as to its pathology; that we are all acquainted with. I think you will agree with me the principal reason why I am here is to describe my experience of the practice of inoculation as a prevention to the spread of the disease, and to elicit some discussion from you as to your ideas upon it. As I said before, my earliest experience of inoculation was derived from Professor John Gamgee. I formed my favourable opinion, firstly, from the results of his work, although his operations were very crudely performed. Then I was abroad for some years, where again I had the opportunity of seeing it practised by Mr. G. Mitchell, of Melbourne. On my return to Edinburgh I found the city much as I had left it—indeed worse; the city was a hot-bed of Pleuro-pneumonia. I make bold to say that out of the thousands of cows in the city three-fourths were exposed to the contagion; and it was no uncommon thing for a man's

whole stock to be carried off twice in the same year. After a great deal of persuasion I succeeded in getting a few old friends and clients to try the much-dreaded operation; for the results had been so fearful under Mr. Gamgee, that the dairymen of Edinburgh were opposed to it. My first attempt was in a large byre which now contains sixty or seventy animals, but at that time, reduced to ten or eleven, all more or less suffering from the disease. My friend offered to purchase fresh stock, and I was to inoculate them, and let the operation stand or fall by the result. The result was that those put in passed through the operation, and remained in the byres non-infected and healthy, until they were finally sold out to the butcher; the others all died; and as in this instance, so in hundreds of others. That was the commencement of my operation being successfully carried out in Edinburgh. The operation in itself is a simple one. The collection of the virus is probably one of the most important things to be attended to. And here I must take some exception to what Professor Walley says. He mentions a variety of processes of preservation in pipettes and tubes, and preservation with salt and glycerine. Well, my experience is, the more you interfere with the virus the more certain you will be to have uncertain results. The virus should be collected from a portion of lung in the first stage of the disease, and not from that which has proceeded to the second or third stage of the disease. It should be collected from the salmon-coloured portion. It should be used before it begins to decompose (that is another important item). By introducing it into any part of the animal economy you will produce a marked constitutional disturbance, recognised by a slight rising of temperature and certain processes going on at the seat of inoculation, but the animal will not contract or evince true Pleuro-pneumonia, nor will it produce it in others. One of the objects of inoculation is to allow the animal to pass through it and its effects with as little disturbance or inconvenience as possible. That is best done by inoculation at the tip of the tail. It seems to me the Professor has made a mistake about me at this point; I have not recommended the operation by means of the insertion of a virus-charged suppository. What I recommend is, nothing more nor less than a woollen seton saturated with the virus, and inserted under the skin at the tip of the tail. But in dealing with an outbreak, and before we do that, it is necessary to satisfy ourselves of the health of the animals upon whom we are going to operate. For instance, I make it a rule to examine the temperature of every animal upon whom I intend to operate, to satisfy myself that there is no rise of temperature or other indications of ill health. But, mark you, it does not follow because you have no rise of temperature that the animals are free from the disease, and especially so with animals in cow-sheds and byres. I know many instances where the disease has been in the very early, and also in an extremely advanced form with very little deviation from the normal temperature; and, startling as it seems, it is now, I believe, a well-ascertained fact. The animals to be operated upon should also be as free as possible from all other apparent diseases; and injuries marked by inflammatory swelling; and the other features of that condition. In fact, the animals should be as free from inflammatory conditions as it is possible to get them. The next point is to place them in favourable conditions for its acceptance, and passing through it with as little disturbance as possible. In hot weather they should be kept cool, in cold weather warm. Little variation is required with regard to diet. At the end of from five to eight days the first symptom becomes evident in local staring of the hair, and the first indications of irruption and escape of virus at the seat of operation. This becomes very well marked from the seventh to the twelfth day—is identical in physical, and, I believe, microscopical character with the virus which had been introduced into the animal, and which was obtained from the lung of another; so that it is quite capable, if

introduced into another healthy animal, of enabling that animal to withstand the disease—that is to say, you can carry through a number of inoculations from one animal to another. The lung virus, however, is always the strongest and most effectual. The only bad results I have had to contend with was in my early days, before I was quite up to managing the animals subsequent to the operation. They arose from the extension of the inoculation, or its results, to the higher parts of the tail, the rump, or to the urino-genital organs. Casualties, however, can be largely avoided by watching the animals closely, and the moment indicative symptoms present themselves amputate sufficient of the tip of the tail. In speaking of the removal of the tail tip by amputation, I differ from the Professor. He recommends amputation and ligature of the part above the seat of section. I have every reason to condemn that mode of operation; it may seem cruel to apply the cautery, but it is by far the best mode of arresting the bleeding and the spreading infective inflammation, which otherwise is apt to go on. To stop it by ligature I hold is practically impossible. On the other hand, by freely cauterising the stump of the tail with a hot iron, you not only produce a new and entirely different form of inflammation, but you cover it with a dry and impervious scab at once, and bring the operation to a successful issue. I may tell you that at one time, when I amputated by ligature myself, I had results which I am afraid Professor Walley must have had, and which were neither satisfactory to me as inoculator, nor to my clients as owners. I trust I should be disposed to adopt that method which would cause as little inconvenience to the animal as possible; if so, then the actual cautery is the one I advocate. With regard to one point about inoculation which I am sure will be raised by the meeting—viz., whether it is possible for an animal, healthy when inoculated, to become a centre of contagion—some hold that it is, and that this is a danger peculiar to the operation. Professor Laws says that it is, and, in fact, Professor Walley, in the paper in my hand, I think, gives a converging opinion: "That there is danger of infection arising from inoculated animals; even in the cases of cattle in which the operation has been successful, there may be circumscribed patches of disease that may subsequently act the part of infective centres to new comers." That is somewhat different. However, it has been said by some that the disease is likely to be communicated by inoculated animals. Gentlemen, in all my experience, extending now to many years, and hundreds and hundreds of town dairies, I do not know a single instance where an inoculated animal has in any wise become a centre of contagion, *always provided that at the time of inoculation it was healthy.* Of course it is quite possible that in an early stage of the disease an animal may be inoculated, that inoculation fail, and the animal recover; but that is not the same thing as saying that an inoculated animal becomes a centre of disease. My experience relates to thousands of cattle I have operated upon successfully, so successfully that my experience is opposed to what the Professor says. My clients also are of an opposite opinion. Not one, but many scores of animals that are exempt from contagion are submitted to me for inoculation. Why? Because they know the fever induced by inoculation does not spread, and because experience has taught them that if the true disease breaks out, the Contagious Diseases (Animals) Act is set in operation upon them, and that often no ordinary working of the Act, short of slaughter, can stop its spread. It may in isolated exceptions; but is that your experience as a whole? and if it is, would there have been a necessity for the Contagious Diseases Act at all? I am sorry to find the Professor advocates the pole-axe. It seems to me, in a profession which claims to be progressive, we are retrogressing in advocating any dealing of the kind, especially when it can be shown from the work, not of myself alone, but

from that of many others elsewhere, that this operation itself is entirely suppressive of the disease. Why, then, destroy the animals, and put the ratepayers to the enormous expense the pole-axe brings upon them? One of the reproaches on the profession has been that we can do nothing with many contagious diseases. Here is one we can deal with; for I hold that we can deal with it as easily as any ordinary cattle disease. I thank you, gentlemen, for listening to me, and if I can make my ideas more clear in the discussion which is to follow, I shall be very happy to do so.

The PRESIDENT: You have heard the clear and lucid remarks of Mr. Rutherford on this very important subject of Pleuro-pneumonia. I am sure that what he has brought before us must be most interesting to us, especially as provincial veterinary surgeons. It is simply for me to announce that the discussion is open, and we shall be pleased to hear what any member may have to say on this question of Pleuro-pneumonia. I will call upon Mr. Greaves.

Mr. GREAVES: I regret very much that our President has asked me to speak upon this subject. It is a subject I really do not profess to know much about; but by being brought forward in the sanguine manner it has been this afternoon, I think it gains a fresh interest in the mind of every scientific man. With regard to inoculation, I remember many years ago Professor Simmonds and others made some experiments, and to a great extent they were followed by disaster, and, if I remember rightly, were entirely failures. I think the great difference between their experiments and Mr. Rutherford's is, that the latter gentleman is very careful in the selection of his virus. If this is not attended to, it will lead to certain evil consequences. Now, if it is true what he has told us this afternoon, it is a matter of national importance, it is a national benefit, and it should be promulgated throughout the land, and every one will be thankful. I only hope that every word that he has spoken is the truth, and will bear investigation. I have no doubt he is earnest in what he has said, and if it is right, I, for one, shall give him my most hearty thanks.

Mr. ROBINSON: My experience is secondhand. I have had the opportunity of witnessing Mr. Rutherford's mode of dealing with the disease, and I am pleased to tell the meeting that I am very much in favour of what I have seen. Whenever I have the opportunity of bringing inoculation before my clients, I shall not fail to do so. Unfortunately, or fortunately, we have had no opportunity for a very long time of inoculating cattle in our part of the country. I am glad that the advantage of inoculation has been so well demonstrated on the Continent, where it was first introduced by Willems, and where it has also been successfully performed by intravenous injection. Its advantages are so well recognised, that I believe some of the Dutch provinces are about to make inoculation compulsory. Of course, as Mr. Rutherford has very clearly shown, the efficiency of the operation depends upon the care which the animal receives after inoculation has been performed. I would only like to say a few words with regard to the propagation of the disease. I notice that Professor Walley says that Professor Laws, I think, has been able to bring about the disease by placing a sponge saturated with Pleuro-pneumonia lymph in the nostrils of an animal. That may *possibly* be the case; but I think that the experiments on the Continent go very much to prove that it is scarcely possible. In the *Recueil de Médecine Vétérinaire* for April of this year there appears an instance of the impossibility of communicating the disease by the introduction of Pleuro-pneumonia matter into the nostrils. The experiments were carried out because it was said that some ill-disposed persons had attempted to give Pleuro-pneumonia to another person's animals by placing pieces of the lungs of animals that had died of Pleuro-pneumonia about the mangers and sheds,

the result being that when the nature of the material was recognised, the owner sent for the nearest veterinary surgeon, M. Delaforge. When he arrived and examined the material, he thought the great probability would be that an outbreak of Pleuro-pneumonia would follow; and the suggestion was made that the animals should be inoculated. The proprietor, however, at that time did not think that inoculation was likely to be effective, and refused. The byre contained fourteen cows, and for a considerable time—I think three months—these cows were watched very carefully, but no case of Pleuro-pneumonia followed. Delaforge was so impressed with the fact, that he thought he would carry the experiment further, and, accordingly, not only did he fill the mangers of his own cowsheds with fresh lesions, but he also placed portions of the diseased lungs all through his shed, containing nine cows. He repeated the same experiment with eleven cows, and again the following year with thirteen. Further he caused the animals even to ingest the material, and no Pleuro-pneumonia followed. With regard to the contagiousness or infectiousness of the disease, I think we ought to recollect what has been discovered respecting these infectious fevers, in which the existence of micro-organisms was first pointed out by the French veterinarian, Delafond. Delafond discovered the presence of micro-organisms (bacteria) in the blood of animals that had succumbed to splinic apoplexy; but he did not attach to them their true importance, which was demonstrated a few years later by Davaine. It was, however, the experiments of Chauveau which first drew the attention of the medical world to the fact that the virus of communicable diseases owed its power of contagion to solid elements, which he then looked upon as granular matter. His experiments showed that if a virulent fluid were deprived of its solid particles, and the fluid inoculated, the result would be *nil*, the solid particles only being capable of producing the disease. More recently, Pasteur demonstrated the exact nature of these solid particles, which he found to be bacilli, and other vegetable organisms capable of producing disease. Since then Koch, in Germany, discovered the presence of a similar organism in tuberculosis; and other diseases have been shown, by other pathologists, to have a similar origin. Now, I think if you remember for a moment this fact, that the virus consists only of solid elements capable of communicating the disease, you may see that an animal having inhaled the solid particles liberated from the virulent fluid, the disease would show its lesions most rapidly in the portions most accessible to the cellular tissue, namely, the alveoli of the lungs. That the disease exists equally in the animal inoculated, as Mr. Rutherford says, I am perfectly satisfied. Instead of the material, however, having reached the lungs by inhalation it has been introduced into a portion of the system in which similar changes to those in the lungs take place, but without involving these important organs. In other words, it is at the point of contact with cellular tissue, that the virus manifests its greatest effects, and, therefore, the tail is the part most suitable for inoculation, as the more important organs are thus protected from the serious lesions of the disease.

Mr. TRIGGER: You being, Mr. President, a member of my own college, will recollect the teaching of our then Professor Simmonds. He was very much opposed to this inoculation, and when I commenced practice I certainly neglected many opportunities of inoculating, when I think I might have done so. I may say I am becoming quite a convert to this operation, and had I the opportunity I had some years ago, I should have proved it before now. But the point I want to know is this. I was the inspector where one cow was destroyed. Mr. Nettleship decided to inoculate, and he has done so; that is within the last seventeen or eighteen days. Supposing, now, in the next few days, we get further cases of Pleuro-pneumonia, how does the compensation to the owner stand affected? Supposing a case breaks out in a cow

which has been inoculated, and I return it, what will the Local Authority say? Has not the Local Authority power to refuse compensation? That is a case which is likely to turn up. I think the cases mentioned by Mr. Rutherford of no rise of temperature were peculiar. I had twenty-five cows in my own neighbourhood slaughtered, and in each case there was a distinct rise of temperature. I always slaughtered when the temperature rose to 103 deg. Fahr., and never found I was wrong, upon a post-mortem examination. That, of course, was in a case of established outbreak of the malady. But the information I wanted was, whether in case of the disease breaking out in an inoculated byre, the Local Authorities would be liable for compensation?

Professor WILLIAMS: I did not intend to speak, but I think I can throw light upon the question, as I have had instances in which the disease has broken out in inoculated animals, and undoubtedly it was there in a latent state when the inoculation was performed. I am quite of Mr. Rutherford's opinion, that if an animal is free from Pleuro-pneumonia when inoculated, it will remain so. I gave him great encouragement in the City of Edinburgh when he introduced the operation; and I have no hesitation in saying that through that encouragement he has persevered with the operation, which is of great public good. With regard to this animal which may take the disease after being inoculated, the presumption would be—and I speak from experience—that she had the disease before inoculation, and consequently the Local Authority would be liable to make compensation. I am under a very liberal Authority—the Local Authority of the County of Edinburgh—and they think that, if an animal has been inoculated, they still have the power to give compensation. But I think you could go upon the ground, that the animal had the disease before the operation, and, therefore, they are bound by law to give the compensation. As to the results of the operation inducing a condition similar to Pleuro-pneumonia, from what I have watched myself, the lesions of Pleuro-pneumonia are manifested at the point of inoculation. Undoubtedly, the organ most exposed to its introduction through the atmosphere, is the lungs; and by inducing fever, it induces in the lung tissues the lesions characteristic of it. I have watched the operation of inoculation at the tip of the tail, and there you have an exudation similar in every respect to the exudation found in the lung tissue. If you go further, and take the virus from that lung for examination, you may detect in the virus peculiar rounded bodies. If you take that from the inoculated tail, and examine it with the microscope, you get exactly the same organism; the organism is propagated at the point of inoculation, and induces such a change as enables the animal to resist the further progress of the disease. I speak from long experience. Whenever an outbreak has occurred, I have recommended the slaughter of diseased animals, and that Mr. Rutherford should be called in to perform the inoculation. He has done that with satisfaction. I have no hesitation in recommending the Government to take this matter into consideration, and make the slaughtering compulsory, and also inoculation compulsory, for the arrest of the progress of the Pleuro-pneumonia. I feel satisfied that is the legitimate and scientific means for arresting the progress of the disease in this country.

Mr. SIMPSON: As far as my own experience goes, it is not very extensive. One or two cases occur from time to time, but I am happy to say it is extremely rare in my neighbourhood. It is not the first time I have heard of Mr. Rutherford's success. I can only say, I have been looking forward with a great deal of interest to hear what he had to say upon the subject. It seems most convincing; the way in which Mr. Rutherford approaches his subject must convince everybody that he is on the right track. Well, gentlemen, it seems to me the object of this Association was to be of some benefit to ourselves and to the community at large. It has been said by that

eminent authority, Professor Williams, that he takes every opportunity of recommending, after mature experience, the operation to be performed, and he believes it ought to be taken up in some way by the Government. The question is—to take a practical view of this matter—whether it is not the duty of this Association to pass some resolution before we separate, that shall be brought before the Privy Council? If this enormous benefit is to be derived where the disease does make its appearance, I think it is time the Privy Council should know what the profession thinks about it. We must not forget that we are discussing not only inoculation, but the valuable paper provided by Professor Walley. I am sure we all feel deeply indebted to him for coming forward under the circumstances in the way he has done with that paper. There are one or two questions, from a practical point of view, I should like to mention. The first is with regard to the power of the Local Authority to order compensation, as they do in the County of Edinburgh, for animals slaughtered not immediately affected by Pleuro-pneumonia, but by Pleuro-pneumonia induced by inoculation. I shall be glad to be informed under what section of the Act that compensation is paid. If it is paid, it is paid under the Act of Parliament, and ought to be paid throughout the kingdom. That would be a handle to us; so that our clients may have no inducement to think they are sufferers from what they may consider a want of judgment on our part. There is another point with regard to the question often raised: You may go into a herd and condemn the animals, some of them affected to a very slight degree, and some not at all; where does your liability begin and end with regard to any recommendation you may make as to the disposal of the animals? Are you at liberty to say that an animal may be sent to the market when, because it has a touch of Pleuro-pneumonia, you have it killed? What I want to get at is, where is the protection to the veterinary surgeon; is he justified in recommending an animal he recommends to be killed for Pleuro-pneumonia to be used for human food? Local Authorities have peculiar views on that matter. The question is, what is a veterinary surgeon's liability under those circumstances?

MR. BELL: I think Mr. Simpson is under some misapprehension as to the words of Professor Williams; he did not say the authorities would be liable for the death of animals arising from inoculation, but from Pleuro-pneumonia. But I get up to support Mr. Rutherford's statement as to the temperature of animals affected with Pleuro-pneumonia. I have found the temperature to be normal when one lung was nearly gone; that is not at all an uncommon thing. In the district in which I live the Local Authorities leave it entirely to me whether an animal is fit for food or not. Of course I have to exercise my discretion. If it is at an early stage, I consider the animal is fit for food. I believe that has been the case all through the country, and I have never yet seen any bad effects from it.

(To be continued.)

Army Veterinary Department.

Reliefs, and the reduction in the number of veterinary surgeons in India, have brought home the following officers:—Longhurst, Kettle, Crow, Nunn, Morgan, Day, Forsdyke, and Kelly. The latter is in the Royal Victoria Hospital, Netley, suffering from the effects of an accident sustained at Malta. Fred Smith is also a patient in the same hospital, having been admitted because of serious injury to his face and eyes, caused by sulphuric acid being thrown upon them, through an explosion, while working in the laboratory of the Netley Medical School.

Messrs. Mann, Lees, and R. W. Raymond, are home from India on sick leave; Mr. Caldecott is home on special duty.

Inspecting Veterinary Surgeon Evans, M.D., has arrived in England from a tour of service in India, and taken over the duties at Woolwich from Mr. Lambert, who is transferred to Aldershot.

Obituary.

A CORRESPONDENT reports the death of Mr. J. Malcolm, M.R.C.V.S., of Enniscorthy, Co. Wexford, in October last. He graduated in 1863.

Mr. Henry Priestman, M.R.C.V.S., of London, died on January 23rd, in the sixtieth year of his age, after an illness of a few weeks. The following appropriate notice of him appeared in *The Live Stock Journal*:—"Mr. Priestman had a vast experience as a practitioner, especially in relation to dairy cattle. He had, perhaps, the largest practice among dairymen's stock of any veterinary surgeon of the day in England, or elsewhere. He was the first to discover and give information of the Cattle Plague in this country, at the time of the outbreak of 1865. He was an independent thinker and an accurate observer. He was well known and implicitly trusted by all London dairymen who knew him, and there are few among them who did not know him personally, as all did by reputation. The various diseases enumerated in the Contagious Diseases (Animals) Act, 1878, were his especial study, notably Pleuro-pneumonia. He was a firm believer in inoculation as a preventive of the disease, but no less was he sound and practical in his advice to avoid infection, to slaughter immediately all the diseased cattle, and to isolate and quarantine the remaining portion of an affected herd. His diagnosis of Pleuro-pneumonia in all its stages—especially his detection of the malady in its earliest manifestations—had almost the character of infallible intuition. He was well-known, respected, and frequently consulted by the most eminent veterinarians of the day. Mr. Priestman was a genial companion and a true friend."

Mr. James Moore, M.R.C.V.S., died on January 30th, at West View, Hendon, Middlesex, aged seventy-nine years. Born in New Cumnock, Ayrshire, he studied at Dick's Veterinary College, where he graduated in 1837, gaining the silver medal for anatomy, and commenced practice in Glasgow, where he remained for some time; then he moved to Leeds, afterwards to Manchester, and finally to London, where he had an extensive *clientèle*, which he only resigned in 1883. He was a member of Council of the Royal College of Veterinary Surgeons from 1873 to 1877, and was also a Fellow of the Central Veterinary Medical Society. One of the earliest among the veterinary surgeons in this country to adopt the medical doctrine of Hahnemann, Mr. Moore enthusiastically practised homœopathy with signal success up to the end of his career, and enjoyed the confidence and patronage of many of those who believe in that system of medicine. After the death of Mr. Haycock, of Huddersfield, he was, we believe, the only veterinary surgeon in the United Kingdom who professed and practised homœopathy, and the large number of works he published were written with the view of demonstrating its advantages over the more popular system of allopathy. The list of these writings is as follows:—"Outlines of Veterinary Homœopathy"; "Lung Disease of Cattle (Pleuro-Pneumonia) Curable by Homœopathy"; "Milk Fever, its Homœopathic Treatment"; "Common Diseases of Animals"; "Veterinary Homœopathy Illustrated by 125 Cases"; "Practical Reply to Sir B. Brodie's Letter on Homœopathy"; "The Cattle Plague"; "Cases Illustrating the Success of Homœopathic Treatment of

Cattle Plague, with an Account of the Norfolk Trial"; "Diseases of Dogs, their Homœopathic Treatment"; "Distemper of Dogs, its Homœopathic Treatment"; "Handy Book of Veterinary Homœopathy"; "Foot-and-Mouth Disease"; "Horses Ill and Well"; "Dog Diseases Treated Homœopathically."

C. C. Sanderson, M.R.C.V.S., of Clapham, Surrey, who graduated in 1867, died early in February. Also E. Wheeler, M.R.C.V.S., Isle of Wight, a graduate of 1836; and G. F. Baker, of Beeston, Leeds, who graduated in 1842.

Notes and News.

METAMORPHOSIS IN NEMATODES.—Dr. von Linstow sums up our present knowledge of nematode worms as follows :—The Nematelminthes, according to the medium in which the individual developmental stage is passed, present a truly wonderful series of metamorphoses, and no less than fourteen distinct developmental stages may be enumerated. (1) The embryo passes into an adult form direct (without the intervention of a larval stage) in the one medium, and also passes its existence in fresh, salt, or brackish water, in plants, in the earth, or in decaying substances (Dorylaimus, Enoplus, Plectus, Monhystera, Rhabditis, and many other genera). (2) The larvæ live in the earth, the adult form in plants (*Tylenchus tritici*, *T. putrefaciens*, *Heterodera schachtii*). (3) The larvæ live in worms, and on their death and decay pass into the earth, when they assume an adult form (*Rhabditis pellio*). (4) The Helminth lives bisexual in the earth, the fruitful females enter the bodies of bees, and produce therein offspring (*Sphærularia bombi*). (5) The larvæ live in the earth, assuming the adult condition in some animal (Dochmius, Strongylus). (6) The Helminth lives as an hermaphrodite form in some animal, the offspring develop into bisexual forms in the earth (Rhabdonema, Angiostomum). (7) Some adult forms differentiate free-living forms developing sexually, and also hermaphrodite forms living parasitically in animals (snails, *Leptodera appendiculata*). (8) The larvæ hatch out in the earth, and then enter some animal, in which they become metamorphosed into hermaphrodite forms (Trichocephalus, Oxyuris). (9) The larvæ live in insects, the adult form in earth or water (Mermis). (10) The larvæ live encapsuled in some animal, and with it pass into the digestive system of some other animal form, in which latter they become adult (Ascaris, Filaria, Cucullanius). (11) For a short time the hermaphrodite form lives in the intestine of some animal, and produces here its larval form, which, penetrating the intestinal walls, makes its way into the muscles, where it becomes encapsuled (*Trichina spiralis*). (12) The adult form lives in the tracheæ of birds; the females lay eggs, which contain well-formed embryos, which get expectorated, to once again enter the bird's system with its ordinary nourishment. In the crop and œsophagus of the bird the embryo hatches out, wandering into the bronchiæ and air-sacs, from whence the larger larvæ find their way to the tracheæ (*Syngamus trachealis*). (13) There will be two larval forms, of which the one will be found in Mollusca, and the other in aquatic beetles and water-boatmen, while the adult form lives in water (*Gordius aquaticus*). (14) There will be two larval forms, of which the one will be found in water, the other in the lung of some Amphibian, from whence it will wander into the intestine of the same animal, where it will develop into an hermaphrodite form (*Nematoxys longicauda*); this latter form is described and figured.—(*Zeitschrift für wissenschaftliche Zoologie*, November 24th, 1885, Band xlii. Heft 4, p. 715, pl. 28.)

UNALLOYED HUMBUG.—The following advertisement appeared in an Irish newspaper not long ago :—"Hydrophobia ; Laurence M'Govern, of Coroge, near Dowra, County Cavan, undertakes to cure any person of that terrible and infectious disease called Hydrophobia, or the bite of a dog in a rabid state, and begs leave to inform the public that he is still in real practice at the above address, where his forefathers resided. The cure is confined in reality to only one member of the family ; the time occupied in effecting the cure is only three days and three nights ; and any person coming in due time will be perfectly cured. The remedy is with our family for the last 400 years or more ; and for the last 35 years a single cure has never failed me. I have on an average cured from 60 to 80 yearly. My residence is within half a mile of Dowra, 7 miles from Blacklion, 6 miles from Drumkeerin, 16 miles from Carrick-on-Shannon, 20 miles from Sligo, 17 miles from Enniskillen, and 10 miles from Manorhamilton. We have known Laurence M'Govern, of Coroge, for many years, and have never known any case to fail if brought in proper time : William Carson, J.P. ; William Clarke, C.C., Dubally, Dowra ; Hy. F. White, Incumbent, Dowra. I am twenty years in this parish, and I have known Laurence M'Govern to have cured hundreds ; besides, I have known him to be an honest man : Hugh de Lacy, P.P., Killinagh ; Stephen Radcliff, Rector. We have known Laurence M'Govern for years to cure Hydrophobia, and have never known any case to fail if brought to him in proper time : Henry Cullen, J.P., County Leitrim ; John Nixon, J.P., Blacklion ; William Nixon, J.P., Blacklion, Thornhill."

SWINE PLAGUE IN THE UNITED STATES.—A subscriber in Sioux County, Iowa, writes :—"We have had heavy losses in this county from Hog Cholera. There have been 5,000, to my knowledge, lost within a radius of ten miles, mostly young ones. There does not seem to be a man who has escaped loss. It made a clean sweep, leaving, in some cases, perhaps ten head, but in many none at all."

AN ARAB HORSE-DEALER'S WARRANTY.—The following is the literal translation of a certificate recently given by an Arab horse-dealer to one of his customers :—"In the name of God, compassionate and merciful, thanks be to God the Lord of the Universe. Prayer and health to the most illustrious of the prophets, to his posterity and to all his friends. Thanks be to God that by His will the firmament moves, that by His mighty power He has created the world, the birds, horses, and every living thing, and to Adam also, whom He commanded His angels themselves to honour. To some of these beings living from the creation the Lord promised His favour, happiness, and paradise, and for others He decreed scorn and His vengeance, which is the hell announced from eternity. Thus it is, as the Lord hath said, He has omitted nothing in the book which was for the pleasure of man. He has granted to him the passion of love for women, of affection for children, for thoroughbred horses, for birds, and for every living thing, and for gold and silver heaped up to hundredweights. And as He has also said, the stable of your horse shall drive away your enemies and those of your God. His shoulders are glory, his entrails are hidden treasures, and his neigh serves to drive away the devil and his armies. All this that has been said comes from the prophet (Mahoma) on the subject of horses, and on him may the prayer and the peace of God rest. And finally this testifies that the mare sold to Don Fulano de Tal, of the illustrious Spanish nation, is one of the mares of pure blood and of the race of Kohelyan Aguiz, is five years old, has a small star on the forehead, and another small mark on the right foot. The present certificate has been written in the name of the bearer, and on the fifth day of the holy month of Ramazan, and in the year 1302.—(Signed) AHMED."

Correspondence.

MEMORIAL TO THE LATE M. HENRI BOULEY.

SIR,—I have recently received a letter from M. Cagny, the Secretary to the Central Veterinary Medical Society of Paris, in which he has asked me to invite the members of the veterinary profession in this country to assist the Central Society in obtaining the necessary funds for erecting a monument to the memory of the late M. Henri Bouley, who for many years has been well known in the scientific world as one of the most advanced veterinarians in Europe.

It is proposed to invite subscriptions not only from veterinarians in France, but in all other countries; also from the various scientific societies and all friends of science. It is further proposed to place the monument in the Veterinary School at Alfort, where M. Bouley spent so many years of his busy life, and where a number of Englishmen have had the privilege of receiving instruction. M. Bouley's remarkable abilities and brilliant manners were doubtless more appreciated on the Continent than here, a circumstance entirely due to the fact that he rarely left his native country.

There are, however, many of us here who had the honour and pleasure of his personal acquaintance, and it is to such that I make an appeal direct. I also hope that the profession in general, and the Veterinary Medical Societies in this country in particular, will assist me in carrying out the wishes of the Central Society in Paris; for it would be a graceful compliment from one scientific society to another, and a practical evidence that the veterinary profession in this country is ready to honour the memory of one to whom honour is due.

A list of the subscriptions received by me will appear in the VETERINARY JOURNAL for May, as the account must be closed early in April.

44, Parliament Street, London. ALEXANDER C. COPE.

THE LIABILITY OF VETERINARY SURGEONS.

DEAR MR. EDITOR,—Your report of the case against Messrs. Stanley and Scott has been perused by me with much interest. Perhaps you will kindly afford space for some remarks upon the subject of "*liability*." Having, during a long practice, thrown a great number of horses for operation, I may be permitted to give the result of my experience for the benefit of the veterinary profession. In the first place, it may be well to declare that during my professional career some eight or ten cases have met with accidents, such as broken back, fractured limbs, etc., *but not one of them could be said to have arisen from the act of casting*. It was clearly proved that the *struggles* of the animals, after being secured, were the sole cause of such accidents. One case was that of a bay gelding which its owner wished to have fired. The animal was cast in the usual careful manner, and everything proceeded satisfactorily until the operation was finished, when it was discovered that the radius of the left foreleg was fractured. This animal struggled violently all the time he was down. Another horse, which I considered somewhat weak in the loins, was brought to be fired for enlarged bursæ upon the tarsi. When requested to operate, I objected, stating that I was fearful some accident might happen, as the back was weak. The coachman who attended the horse said he must be fired. The horse was thrown down and the operation performed, and I was glad to see him rise all right. A month afterwards the horse was brought again, to be fired upon the front legs, as the man said they were weak at the knees and he should be fired. I remonstrated with the man, and charged him with wishing to kill the horse. As he escaped the first casting, I had hoped it was all over. The instructions received by this man were imperative. It must be confessed I undertook the operation with a feeling of dread. He was thrown,

and all seemed to progress favourably, although his struggles were violent, when, to my horror, it was discovered, after removing the hobbles, that the brute was unable to regain the standing position, and he lay like a log of wood, powerless ; the back was broken. An army surgeon happened to call upon me at the moment, when I explained what had occurred, and he expressed himself in such terms as were cheering, but at the same time I felt not a little chagrin at being placed in such a predicament. Another case of a four-year-old mare, with large spavins, was brought to be fired. Her hocks were so stiff after a twelve miles walk that she could scarcely flex them. She was thrown in the usual careful manner, and one joint was fired. When she was turned upon the opposite side, I noticed an enlargement upon the inner side of the fired leg, and upon examination found it to be a fracture. One of the farriers said he heard a noise similar to the cracking of wood, which took place during her struggles. The owner was of opinion that some blame attached to the men in casting, and he was advised by his attorney to process me for a certain sum of money, the supposed value of the mare. I defended the case, and satisfied the jury that every care had been exercised in throwing the mare down, and that the operation was performed in a proper manner ; I gained the case. These are a few examples which have fallen under my notice. Some time ago, an attorney called to consult me in reference to a case in which he was interested. He said a client had taken a colt to a veterinary surgeon to be castrated, and that the animal was cast in the usual way, but after operating upon one gland, it was discovered that a leg was broken. He was anxious to know what my opinion was, as his client intended proceeding against the surgeon in order to recover damages. His client was present, and would answer any question put to him. When the name of the veterinary surgeon was made known to me, I remarked that he was the greatest enemy I possessed, and he should accept any remarks I might offer in good faith. Having interrogated the owner as to the condition of the veterinary surgeon and his helpers, he declared they were all sober, and did their work satisfactorily, *so far as he saw*. I then said such things occasionally occur even with the greatest care, and in proof of which I adduced several instances where fractures had taken place in similar cases, and even with less cause. The attorney seemed not to believe my assertions for the moment, but on further explaining matters, he came to the conclusion that it would be useless to take the case into court, especially with such a witness as I appeared to be. The case was abandoned. With regard to the liability of veterinary surgeons, I cannot see in what manner we can be held responsible for an accident in cases of throwing for operations, *provided* there are men enough, that every one is sober, that there is no larking or joking, and every act is performed correctly and with the utmost care. Surely all this is sufficient to exonerate from blame. But there are individuals who are fond of litigation and, should an accident happen, are desirous of not only obtaining payment of two or three times the value of the animal, but they are desirous of injuring the reputation of the practitioner, which is cruel in the extreme. It has been decided by many judges that if a man brings the best of his judgment to bear upon a case, and exercises his skill to the best of that skill or judgment, he is not liable. Every man is not alike endowed with superior ability, but he does his best, and what more can a man do ? I am free to admit there are many ways of throwing and securing horses for operation, and I believe but few know how to secure properly, so as to prevent violent struggles when secured. The *ordinary* method adopted is *incomplete*, and it would be well if some change took place ; perhaps, in the present day, a more complete system is taught at the schools than what I saw in my school-days, but I have not heard of it. When I castrate, I cast with *three fettered legs only*, and secure the fourth after the animal is down. Since I adopted this principle I have never had

an accident to record. As to firing, it is an operation I never—or scarcely ever—perform, and not without great pressure, as I believe it is not needed. I am as averse to firing as I am to docking horses' tails and cutting the ears of dogs ; but I dare to say there are many of us who go in, on the same old and, I may add, cruel groove as our forefathers did. It is to be deplored that operations which are unnecessary should be continued, and if they *are* unnecessary there must be cruelty. I have found that when the head and neck of the animal is *properly* secured, the struggles are reduced to an immense extent. The secret, in my opinion, lies in the fore part of the animal. If the nose is constantly allowed to be lowered towards the chest, no man can prevent struggling ; but let every operator learn the mode of securing the head and neck, and he will have discovered the true method of fastening and preventing violent struggles.

Limerick, *February*. R. H. DYER, M.R.C.V.S.

PROTECTION FROM IMPOSTORS.

SIR,—I think just at this time of year, when the candidates for Council will be soliciting our support in May, we should seriously consider if the present members have efficiently performed their duty—whether they have represented us or misrepresented us. When our Veterinary Surgeons Act was passed, we quite expected we should be protected from the quacks, and we are often complaining of the apathy of the members of the profession in taking so little interest in its advancement. Now, I think we have had a bad example set us by the Council. In April last, a farmer had in his possession a number of sheep affected with Sheep Scab ; they came out of another district where they were declared by the Veterinary Inspector to be affected. When moved into a fresh district, it was the duty of the owner to give notice to the local authorities, or its officers, of the existence of disease. The sheep being in the district some considerable time, the constable reported the case, and the Veterinary Inspector—a properly-qualified man—was instructed to examine the sheep, and gave a certificate to the effect that they were affected with Sheep Scab. The owner was summoned to appear before the magistrates ; a man styling himself a veterinary surgeon, but who was neither a member of any veterinary college nor a registered practitioner, was employed to dress these sheep, and gave evidence for the defence. He said the sheep were not affected with Sheep Scab. The case was dismissed, and the qualified man's reputation suffered to some extent in consequence. But what I wish to draw the attention of the profession to is, how the members of Council exert themselves to bring the Veterinary Surgeons Act into operation. I thought this was an excellent test-case, as this man, on oath, and when afterwards cross-examined by the magistrate's clerk on the point, swore that he was a member of the Royal Veterinary College, Edinburgh. Of course there is no such institution. I ascertained he was neither a member of any veterinary college nor a registered practitioner, nor held the Highland certificate. The same week I wrote to Mr. Hill, the Secretary of the Royal College of Veterinary Surgeons—who, I may say in passing, always answers our letters with promptitude and courtesy—soliciting him to bring the matter before the Council at the next meeting, and enclosed a local paper containing the account of the trial. I asked them to prosecute or give me their consent to do so, as the Act states that the Council may prosecute in such cases, but a private person shall not do so without the written consent of the Council. Well, the Council did not meet for about two months ; the case was not decided upon then, but was to be held over for the consideration of the Registration Committee, which met three months later on ; and then, after all

this procrastination and humbugging, I received a letter from Mr. Hill to the effect that the Council would not themselves prosecute, but gave their consent for me to do so. The members of our Southern Counties Veterinary Association felt very warm in this case. I convened a meeting forthwith, and I confess with pleasure that every member was willing to subscribe his portion towards the expenses of a prosecution. At the meeting it was resolved that I should, as president, instruct a solicitor to take legal action at once ; but on his looking over the Veterinary Surgeons Act, it says fines and imprisonment may be recovered and imposed summarily—that is to say, under the Summary Jurisdiction Acts, 1848 and 1879 ; then, on referring to these Acts, under Section II., it states that all information must be laid within six months of the offence being committed. The six months had expired, and the chance was lost, entirely from the delay and laxity of the Council to consider this matter as business-men should do. I think when members of the profession are loyal and willing to subscribe to the College their mite, and exert themselves to advance the interests of the profession, the Council ought to prosecute in such cases, and not tell a private member he has their consent to do so ; which means that he can put his hand in his pocket and pay for a prosecution which really belongs to the whole profession. I think, after Mr. Fleming's indefatigable exertions in procuring this Act, the Council ought to take a little more interest in putting it in motion in such cases, and I am quite sure a fund could be raised for this purpose, judging from the enthusiasm displayed by the members of the Southern Counties Veterinary Society.

W. MARTIN.

MEETINGS OF VETERINARY SOCIETIES.

THE next meeting of the Lancashire Veterinary Medical Association will be held at the Blackfriars Hotel, Manchester, on March 10th.

Several communications and reports are unavoidably held over until April.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from H. W. Steel, A.V.D , Poona ; "Pharmacon" ; M. Kettritz, London ; J. Matthews, London ; J. B. Gresswell, Louth ; J. C. Dwyer, A.V.D. ; J. C. James, Thornbury ; R. H. Dyer, Limerick ; J. Macqueen, Glasgow ; J. W. T. Moore, Newcastle-on-Tyne ; J. W. Ingram, Manchester ; A. Broad, London ; A. Hill, London ; J. S Hurndall. Liverpool ; T. Briggs, Bury ; J. F. Oliver, London ; W. Broughton, Leeds ; Sir F. Fitzwygram, Leigh Park, Havant ; J. Dowling Allman, London ; F. Smith, A.V.D., Netley ; A. C. Cope, London.

BOOKS AND PAMPHLETS : *J. H. Steel*, M.R.C.V.S., A Manual of the Diseases of the Elephant ; *P. Flower*, An Introduction to the Osteology of the Mammalia ; *E. M. Crookshank*, An Introduction to Practical Bacteriology ; *T. Lauder Brunton*, A Text-Book of Pharmacology, Therapeutics, and Materia Medica.

JOURNALS, ETC. : *British and Colonial Druggist ; Revista Popular de la Exposicion Rural ; Bladen Nitgegewen d. d. Vereeniging ; Bevor van Veeartsenijkunde in Nederlandsch Indië ; Rundschau auf dem Gebeite der Thiermedicin, etc. ; Revista Argentina de Ciencas Medicas ; Quarterly Journal of Veterinary Science in India ; Mark Lane Express ; American Live Stock Journal ; Revue Vétérinaire ; Recueil de Médecine Vétérinaire ; Annales de Médecine Vétérinaire ; Wochenschrift für Thierheilkunde und Viehzucht ; Live Stock Journal ; Lancet ; British Medical Journal ; Journal de Médecine Vétérinaire ; Echo Vétérinaire ; Edinburgh Medical Journal ; Practitioner ; Archiv für Wissenschaftliche und Praktische Thierheilkunde.*

NEWSPAPERS : *Alnwick Guardian ; Sunderland Herald ; Bell's Weekly Messenger : Liverpool Mercury ; Newcastle Daily Journal ; Bristol Times and Mirror.*